

amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



VOL. 49, No. 5

MAY 1981

FEATURED IN THIS ISSUE:

- ★ ***AN IMPROVED SERIES R-X NOISE BRIDGE***
- ★ ***AMATEUR RADIO IN JAPAN***
- ★ ***THE TRINITY LOOP ANTENNA***
- ★ ***A REVIEW OF THE FRG7700***

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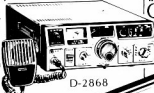


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Cover Photo



At the Liverpool and Districts Club Field Day. Craig Strudwicke, 9, takes off after the beeper and Lee Barry, 10, checks the scrub. See page 32.

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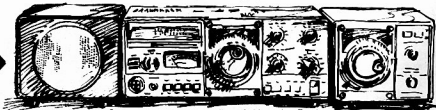


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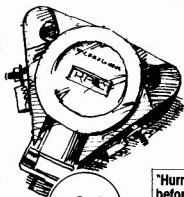
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Proposed Radiocommunication Legislation

The Wireless Institute of Australia has made a detailed Submission to the Department of Communications in respect of the proposed Radiocommunication Bill to replace the Wireless Telegraphy Act.

The Institute has been represented at a meeting convened in Canberra on the 25th March by the Department of Communications when the general principles behind the proposed legislation were discussed by representatives of the Department and representatives of various users of the spectrum.

As the representative of the Amateur Service, the Institute is concerned to see that any legislation does not detrimentally affect Amateurs. Such a result could occur, for example, if the particular characteristics of the Amateur Service were overlooked in the drafting of legislation of general application.

The Institute has expressed its general support for the principles proposed as a basis for the Bill. In particular, it has welcomed the proposal that reception be de-regulated and the proposal to change the forfeiture provisions to be found in the current Act.

No doubt the Bill will be very different from the present Wireless Telegraphy Act. For one thing, it will be a much more detailed law governing the use of the spectrum. It will, for the first time, deal with matters such as interference and the control of interference. It seems that an approach of licensing people rather than equipment will be adopted — not new for the Amateur Service but new for most other users of the spectrum. Broadcasting, however, will continue to be regulated under the Broadcasting and Television Act.

Of course, the detail of the proposed Bill will have its own dangers. Particular provisions will require particular exceptions. The Institute has made a number of proposals. It is likely that new offences will be created and it would seem that one option will be the creation of a new offence along the lines of prohibiting the possession of a transmitter other than in accordance with a licence. Such an offence could be seen as simplifying the enforcement of the legislation, simply because it is easier to prove possession than it is to prove use.

The Institute would approach such a proposal with considerable caution. In the creation of criminal offences it is important that the nature of the wrong to be regulated be kept in perspective. In fact, no harm flows from the mere possession of a transmitter. Harm can flow from its use whether that use is unregulated or improper. The possession of a transmitter should not be treated on the same basis as the possession, for example, of heroin. There are a multitude of situations where a person other than the licensee will have possession of a transmitter — for example, repairers, warehousemen, wholesalers, carriers and so on. The licensee must be able to give permission for another person to possess (as distinct from use) a transmitter. Upon the death of a licensee possession of a transmitter will pass to his legal personal representative. A transmitter may be kept as a curio or a museum piece. The Institute believes that mere possession ought not to be an offence. The legislature will face two alternatives — either make it an offence without exceptions in which case all sorts of people will from time to time commit offences or it will be faced with creating an offence subject to numerous exceptions.

The Institute is not unaware of the difficulties of the proving of use. It is suggested that possession, other than pursuant to a licence, should be *prima facie* evidence of use. That is, a person accused of illegally using a transmitter will have to satisfy a Court that, despite the fact that he was in possession of a transmitter other than pursuant to a licence, he had nonetheless not used it. Of course, all the surrounding circumstances will throw light on the likelihood or otherwise of a transmitter having been used.

Another matter that has caused the Institute some concern are proposals to control the importation and sale of equipment that cannot be licensed in Australia. No doubt it is sensible to afford some protection for consumers. The dumping of sub-standard CB equipment in Australia has hardly been in the community interest. On the other hand, the mechanisms that are used to achieve this sort of regulation have to be thought out very carefully. It is a characteristic of the Amateur Service that Amateurs either build their own equipment or purchase commercial equipment or modify commercial equipment. Amateurs should not be inhibited from importing equipment from overseas. It must be recognised that Amateurs should have the right to modify equipment manufactured for use on non-Amateur frequencies and unlicensed in Australia on those frequencies for use on Amateur bands. The Institute is concerned to ensure that general prohibitions are not formulated to inhibit the normal activities of Radio Amateurs.

The control of interference is another important aspect of the proposed Bill. The Institute would hope to see the creation of powers to control radiation from non-communication as well as communication equipment that causes harmful interference to radio communication services. It would also like to see mechanisms established by which minimum standards as to the susceptibility of communication and non-communication devices to radio interference may be prescribed. It would reject the imposition of an absolute obligation on Amateur licensees, or indeed any licensee, to avoid causing interference irrespective of the quality and standard of the device being interfered with.

It should be pointed out, in the context of the control of interference, the Commonwealth can only legislate to the limit of its constitutional powers and it may well be that it cannot exercise all the powers really necessary to effectively control interference, at least without supporting State legislation.

The Department of Communications has repeatedly undertaken that after a Bill has been introduced, a reasonable time will be allowed for public discussion. For example, the Bill could be introduced in one sitting and not enacted until a subsequent sitting and then after the amendments that have been accepted are incorporated into the Bill.

Of course, a debate of principles can only go so far. What really matters is how those principles are expressed in the draft legislation and the mechanisms that are relied upon to achieve the ends sought. It is almost inevitable that the Institute will be making further Submissions in the context of the specific provisions of the Bill when it is introduced.

MICHAEL J. OWEN VK3KI ■

"A LETTER"

During the course of one's business, and in particular, editing this magazine, I often come across an item which warrants more than just a cursory glance—such an item arrived last week in the form of a letter to the editor. Normally I would just publish it without comment—but this one is different as you will see in just a moment.

The letter comes from one of our regular contributors, Drew Diamond VK3XU, and is dated 10/3/81.

Drew writes:—

43 Boyana Crescent,
Croydon 3136
10th March, 1981

"The Editor,
Dear Sir,

AR should be available from magazine outlets; or at least from those which sell technical magazines. Local publications presently available have forsaken radio amateurs, and now only provide computer and 'gee whiz' electronics projects, along with interminable equipment reviews.

The only off-the-rack magazine which purports to cater for amateurs is generally filled with soft articles; such as DX-peditions and boys' adventure stories.

The Institute, through AR, should be providing Australian amateurs with the technical information that we require so that we may keep abreast of the latest of the art, as there is still much to be done. At present, technically minded non-members depend heavily upon overseas publications for information.

It is wrong to provide AR on a 'members only' basis. Today, we have far more amateurs than ever, thanks to the introduction of the Novice licence. The Institute should be attempting to enlist the membership of these keen new amateurs.

It is therefore necessary that the official organ of the WIA be

made readily available to all radio minded people.

Yours fraternally,
Drew Diamond VK3XU."

After first reading Drew's letter I stopped for a moment and thought "Why not?", this is a darn good suggestion!—perhaps you, the reader, may also think the same—particularly so as I have had the same question asked of me many times previously by others.

Well, let's be practical—to put AR for sale on the newstands or wherever is not as simple as it first looks.

We have investigated this area very thoroughly in the past, even to the extent of obtaining legal opinions.

To cut a long story short, we will NOT be allowing AR to go on sale to the general public. I am not going to leave you in mid-air with an authoritative statement such as that without some sort of explanation as we see it.

Our main problems are as follows:—

1. Cost of publication, distribution, profit. To sell via booksellers means the retailer must take his share—this is usually in the order of 35 per cent of the cover price—at the existing cover price less printing costs, there is no profit—refer published expenditure statements.
2. There would be no return to cover administrations costs and running the WIA—we would lose many members, thus some of the services supplied by the WIA would of necessity have to be curtailed—would you remain a member if your AR can be purchased over the counter?
3. Relating to 2 above, if AR prices were raised to cover expected membership losses, each issue would have to sell for approximately \$2.50 per copy—our research has shown that this is not a very competitive situation—our sales therefore could actually drop, as we would be pricing ourselves out of the market from our so-called competitors.
4. Taxation—a commercial proposition as suggested is subject to sales tax, and income tax is payable on profits made.

5. The existing members would have to bear the cost of the venture.

These are the main basic reasons however, I have not mentioned in detail the effect which it may have on advertisers, or the production problems and costs in increasing the number of pages to produce an economical and saleable item—I have not even mentioned our constitution under which we operate.

I guess some or even most of the above negatives could be made into very large positives—there are naturally certain advantages which Drew refers to and of course if we were to venture into this proposition, we would certainly do it with all stops out—opposition magazines would not be able to compete, and would effectively disappear because I feel we could almost control a monopoly of the market with the product we could offer.

But is that our scene? I would dare to say NO!!—we really do not have the resources (money or the manpower, voluntary or paid full time employees, etc.).

Let us not let the matter rest there though, we would like some member feedback in overcoming some of the above problems—your suggestions are most welcome.

In the meantime it is up to WIA Divisions and members themselves to actively promote membership to new amateurs and existing non-members.

If we fall in this regard, we can only blame our own apathetic attitudes. ■

STOP PRESS

There is NO TRUTH in the rumour that the Department will revert to ITU-type Morse for exams.

If this step were to be even contemplated, said the official spokesman, the WIA would be consulted well in advance.

1981 FEDERAL CONVENTION

Early Agenda Items for the Convention have been reported in this column and on the Federal Tapes.

For those who like to keep up to date about the outcome of Convention discussions here are the late items —

That services be not provided by the WIA free of charge to non-members (VK6);

That 21190 and 28450 kHz be adopted as additional WIGEN net frequencies and amateurs requested to keep these frequencies clear for all properly identified WIGEN communication purposes (Exec.);

That a form of recognition for meritorious service to the Federal body be implemented (VK5);

That the allocation of Novice sub-bands be reviewed (VK5);

That call sign entries in the call book be marked to show those emanating from WIA membership records (VK4);

That a follow-up of unfinancials be discussed (VK4);

That expected dates of availability and usage be reported on for the new bands (VK2);

That full repeater details appear in the 1981 call book (VK6);

That autopatch on repeaters be approved by DOC (VK6);

That 3.7 to 3.9 MHz on a secondary basis be sought for amateurs (VK1);

That cross linking of repeaters be permitted under conditions (VK5);

That the transmission of incidental music for training programmes be allowed on all radio and TV bands where it is an integral part of such programmes (VK5);

That phone-patch prohibitions be removed (VK5);

That DOC be asked to extend the 80m Novice segment to 3515-3625 kHz (VK5);

That a joint WIA/DOC Committee be set up to review and report on continuing post-WARC matters (VK7);

That Handbook paragraphs 6.56, 6.20 and 6.21 be deleted (VK7);

That the requirement to produce QSL cards for WAVCA Awards be deleted (VK7);

That plans for 75th WIA anniversary celebrations be discussed (Exec.) and discussions on IARU (including re-structure of IARU HQ) and post-WARC 79 matters be discussed (Exec.).

These agenda item descriptions are necessarily very brief and any member desiring additional information concerning them should contact his Divisional Federal Councillor. It is not known if the last item (d) of the first column in April WIANEWS, page 7, will firm up as an agenda item from VK4 reference the John Moyle National Field Day.

DOC LETTERS

Here is the text of a letter dated 4th March, 1981, from the Minister for Communications —

“You recently asked for clarification of the Government's attitude on the subject of concession fees on amateur radio licences for pensioners eligible for “fringe benefits”.

In 1976, the then Minister for Post and Telecommunications, the late Hon. E. L. Robinson, indicated his agreement in principle to the proposed concession on the understanding that the impact on revenue would not be significant, and drafting of a regulation was commenced. However, when the draft regulation was subsequently submitted to Mr. Robinson's successor, the Hon. A. A. Staley, the situation had changed. The new Citizens' Band Radio Service had

been introduced and there was a real question whether the concession could be confined to amateurs, without extension to pensioners operating citizen band, harbour mobile, or other classes of radio equipment.

You will appreciate that this raised the prospect of revenue implications far greater than those associated with a concession restricted to amateurs. Consequently, the matter was referred to the Departments of Finance and Social Security for advice on the implications for general finance and welfare policy.

The response revealed that the proposed concession would not be consistent with Government policy which generally restricts “fringe benefits” to charges for services such as telephone rental or medical treatment both of which are regarded as essential for the health and welfare of pensioners. Recreational activities, such as amateur radio, while recognised as very valuable to pensioners, are not regarded as a suitable area for the extension of “fringe benefits.”

A concession to pensioner amateurs would represent a new departure in Government policy, and similar benefits could scarcely be denied to pensioners using other types of radio equipment. Consequently, I regret that the Government is no longer able to proceed with the proposed concession.”

In relation to the use of the AX prefix (see WIANEWS April AR, page 7) the Department was requested to confirm the following as being acceptable to the WIA —

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66 Stations in the Amateur Service will, for so long as the prefix is not required by the Australian Administrations for the identification of stations in any other Service, be permitted (at the Amateur licensee's option) to use the prefix "AX" in lieu of the prefix "VK" on the following conditions:

1. Except in special circumstances, such use shall be restricted to a continuous period of two months, not earlier than two years from the last day of the previous period of such use.
2. The time of such use shall be nominated by The Wireless Institute of Australia, and then only to coincide with, or relate to, an event of National, and not local, importance.
3. Except in special circumstances, and in order to allow the Administration to give such notifications as are necessary, the nomination of the period shall be made by The Wireless Institute of Australia at least six months prior to the first day of the period nominated.
4. Any question as to whether "special circumstances" as referred to 1 and 3 have arisen shall be resolved by discussion between The Wireless Institute of Australia and the Department.

We have provided for exceptional circumstances of 1 and 3 of the conditions to meet the case of an event of national importance that may not be foreseen, for example, the coronation of a monarch. 99

In letter RB4/8/1 of 26th March the Department replied as follows —

It is agreed that the conditions for use of the AX prefix as set out in your letter reflect the intent of our recent discussions on this matter, and are acceptable to the Department.

The Department therefore now awaits the Institute's recommendation on the next occasion on which use of the "AX" prefix should be authorised. 99

MEETINGS

At a meeting of the Publications Committee on 3rd March a discussion was held on incentives to attract serious technical articles for AR and the matter will be referred for consideration in the WIA budget.

At the Executive Meeting on 19th March it was noted that a successor had been nominated by VK1 Division to take over as Federal Contest Manager when Wally Watkins VK2DEW completes his term of office shortly. A report by an EOP sub-committee was received and discussed. It was noted that the RSGB had been duly admitted to membership of IARU R3.

Numerous specialist section annual reports for the 1981 Federal Convention have been received but space precludes comments at this time. ■

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VK8, 9 — Federal QSL Bureau, Mr. N. R. Penfold VK8NE, 388 Huntriss Rd., Woodlands, W.A. 6018.

An Improved Series R-X Noise Bridge

Bob Slutzkin VK3SK

8 Lynedoch Avenue, Balclutha 3083

This is an improved type of series R-X noise bridge which can be used for the measurement of antenna system impedances in terms of $R + jX$, the reactance term being obtained by dividing the " jX " reading by the frequency in MHz.

In earlier series R-X noise bridges such as the commercially available Palomar or MFJ bridges a formula or graph was needed for the conversion of the readings of the "X" dial into ohms reactance; but their derived reactance ranges are awkward. The two commercial bridges mentioned have different conversion formulas, as their components are different, but neither has a large enough inductive reactance range at the higher frequencies. Then, the capacitive reactive ranges are excessive, and at the lower frequencies the slope of the conversion graph is so steep that reliability of capacitive reactance readings could be suspect.

The parallel R-X noise bridge, as described by W6BXI and W6NKK in Feb-

rury 1977 Ham Radio, and my "Squeeze-Box" an improved parallel type admittance bridge, overcame this range problem (although complex calculations were needed to convert the readings from either bridge into the form $R + jX$, even though I had pointed out that the use of admittance, in the form $G + jB$, might be simpler). After further work on the "Squeeze Box", I have discovered that the fall-off in measurement accuracy at the higher frequencies, resulting from the stray inductance that equalization will not fully compensate for, is greater than I had previously expected. In the worst case, even in a bridge in which special care had been taken to minimise stray inductance, and then to carefully equalize it, a measurement error as high as 30 per cent could occur on a capacitive load at 30 MHz on a line with an SWR of only 2:1.

Because this type of error reduces rapidly as the frequency is lowered (the error being proportional to the square of the frequency), and because it diminishes

as resonance is approached, it is not too serious. Many radio amateurs would be content to accept that errors are likely in their measurements on lines with significant SWRs if there could be confidence in the indication of a correctly matched line. But because 30 per cent is a large error, we should look for an improvement on this situation.

Stray inductance is the cause of the problem in the parallel bridge, stray capacitance being fully compensatable. The components used in the parallel bridge have inbuilt stray inductance; and no matter what care is taken in the layout of the components for the reduction of wiring inductance, errors of the order of the above example will occur. In the series bridge, on the other hand, stray capacitance is the corresponding problem, and stray inductance is fully compensatable. Fortunately, it needs only moderate care to keep stray capacitance down to a harmless level in a series bridge; so the series bridge might become the better choice for antenna

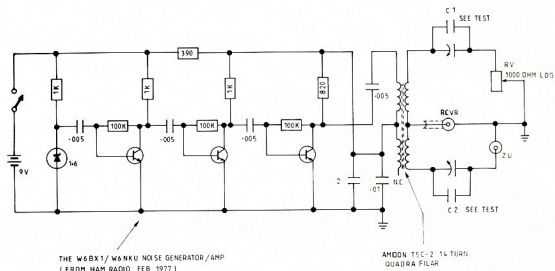


FIG. 1. SCHEMATIC OF THE IMPROVED SERIES R-X NOISE BRIDGE

measurements at HF, if only the scale-range problem, mentioned above, could be overcome. Well, it can! The bridge that is described here has an almost linear reactance scale which is symmetrical about its zero point. Its range may be tailored to suit the individual user's needs.

The schematic in Fig. 1 shows that the circuit is not unlike those of the Palomar and MFJ bridges. The difference is that C1 and C2 are both variables instead of one being fixed. In fact, C1 and C2 are matched variables with matched shunts, and they are ganged together in opposition (like a differential capacitor, but with separate and insulated rotors). See photographs. It will be shown that the size of the variables is relatively unimportant, as the selection of the shunt size determines the reactance range.

When the bridge is balanced against a load of $R_u + jX_u$, the following equations will be satisfied:

$$R_u = R_v, \text{ and} \\ X_u = (C2 - C1)/(2\pi C1 C2)$$

The scale is graduated in terms of $10^6 (C2 - C1)/(2\pi C1 C2)$, so that any reading on the dial can be divided by the frequency in MHz to give the reactance in ohms. We could say that the scale is a "jFX" scale, graduated in "MHz-ohms".

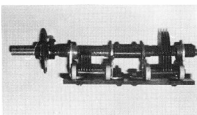
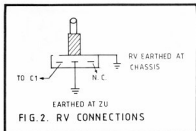
If C1 and C2 are each 2-12 pF with 33 pF shunts (making C1 35-45 pF and C2 45-35 pF) the MHz-ohms range would be -1011 to $+1011$ which would produce a reactance range of ± 36 ohms at 28 MHz (just barely sufficient to cover a 2:1 SWR range at that frequency), while it is double that X range at 14 MHz and ± 3.5 MHz. Reducing the shunt size to 27 pF would increase the MHz-ohms range to ± 1407 producing a ± 50 ohms reactance range at 28 MHz. Shunting the 33 pF shunts with 40 pFs will approximately divide the range by 4.

C1 and C2 could be larger, say 3-40 pF variables shunted by 57 pF, to provide the first range above. Suitable shunt sizes can be calculated to provide any desired jFX scale when combined with any sized variable capacitor; and the appendix tabulates the shunts required for combining with some typical variables for certain useful jFX ranges.

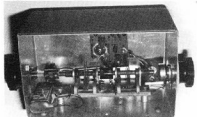
Thus there is a flexibility in the choice of variable capacitors for this bridge, which is quite an advantage, particularly in these days of component shortages.

CONSTRUCTION HINTS

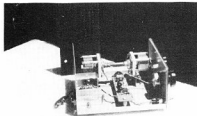
Ham ingenuity is required to devise a good mechanical arrangement for the ganging, mounting and driving of C1 and C2; because the capacitors most suited for using in this manner may not be easily found. Even those little screwdriver-adjust air trimmers which were once so plentiful in disposals equipment can be adapted for the job, with a little patient fiddling. Once the capacitors have been prepared, the most difficult part of the whole project will have been completed.



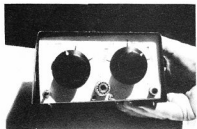
One method of making a differential capacitor from two small conventional variable capacitors.



Alternate construction of a differential capacitor. This one is installed in a parallel type noise bridge. The author has dubbed this instrument a "squeeze box" because of the method of operation.



The completed series noise bridge, showing where all the bits fit.



Front view of the instrument.

The instrument needs to be built into a box which is big enough to allow the capacitors to be mounted well clear of everything else, because this is a precaution necessary for the minimising of stray capacitance, 150 x 100 x 100 mm is a good size. I like the arrangement with the capacitors and the potentiometer mounted in line with each other, and their dials in the centres of the side panels. They should have either very large knobs (say 50 mm diameter or more) or planetary dials.

For the noise source, any of the designs which have been described elsewhere for other noise bridges would do, but the quadrifilar transformer arrangement of the W6BXI/W6NKU design in February 1977 Ham Radio is worth incorporating in any of the other noise sources which might be used.

The wiring is straightforward, so long as the normal precautions for HF equipment are taken — such as the avoidance of earth loops and of long leads. Of greatest importance is that stray capacitance be kept to a minimum. The C1-Rv lead, and the C2-Zu lead need special attention. The next process to be described is the equalizing of stray inductance, which involves adjusting the relative lengths of these two leads.

EQUALISING STRAY INDUCTANCE

For this process, the Zu socket needs to be terminated in a short circuit. A good way of doing this is to form a small pad of steel wool which will just neatly cover the end of the socket, and to then pass the pin of a PL259 through the centre of the pad before screwing the plug tightly into the socket. The steel wool provides the desired non-inductive short circuit termination. The equalization is done on a trial and error basis, using different lengths of leads until the correct lengths can be found which will enable the bridge to hold its jFX setting for balance over the HF spectrum.

First with the C1-Rv connection as short as possible, and a slack length of 22 gauge tinned copper used to connect C2 to Zu, the bridge should be balanced at 3.5 MHz. (For those new to noise bridges, this involves turning on the noise source, while the receiver socket is connected to the station receiver which will then produce a loud hiss noise. To balance the bridge, its dials are adjusted simultaneously until the noise is tuned out. In the test just described, the R control should finish up fairly close to its fully counterclockwise position, and the IX control about central.) Now, on returning the receiver to 28 MHz (unless by good fortune the length of the C2-Zu lead had been guessed correctly) the noise would reappear to indicate the bridge had not held its balance with the change of frequency. If rebalancing requires a decrease in C2's capacitance, the C2-Zu lead will need shortening, and vice versa. If its shortest length is still too long, then the C1-Rv lead will need to be lengthened; but by trial and error, in this

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b) 380-514 MHz 1.0uV S/N 12 dB
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manner, lead lengths can be established which will allow the bridge to hold its balance over the HF range. The connections may then be made permanent, and the point of the jX scale corresponding to the adjustment for balance should be marked zero. This will have completed the equalization.

GRADUATING THE SCALES

The R scale may be graduated against its resistance values measured at DC, up to 100 ohms without introducing any appreciable errors in the frequency range to 30 MHz. Between 100 and 200 ohms stray capacitance might cause small but acceptable resistance measurement errors (which would be frequency dependent). Above 200 ohms RF resistance measurements would be unreliable if based on a DC measurement. Consequently, it is recommended that the R scale be graduated against DC resistance measurements made on a good quality ohm-meter (such as the Fluke digital multimeter model 8020A), and that graduations be marked in, every 10 ohms up to 100, then at 150 and 200 ohms.

The jX scale may be graduated against measured values of C1 and C2 at different settings, and the fX values calculated from the equation:

$$fX = 10^6 (C2 - C1) / (2\pi C1 C2)$$

To do this fully, the C1-Rv connection would need to be opened for C1's capacitance to be measured. However, the linearity of the two capacitors' scales may be assumed, so that measuring C2 (which can be done without disturbing any wiring) should be sufficient to establish the full scale; because the zero point on the scale will have been established during equalization, and when jX is zero, C1 = C2. Therefore, an instrument capable of measuring capacitance to the desired accuracy will be required. The measurements should be made at as low a frequency as possible so that errors due to the leads from the noise bridge to the measuring instrument will be minimised. Even if the capacitors cannot be measured, and the marked values of the variable capacitors and their shunts assumed to be correct; the use of "dead reckoning" to graduate the scale might be close enough for many radio amateurs. The use of one or more fixed capacitors as "standards" (if their values are known accurately) will enable spot checks to be made on the negative part of the jX scale. The standard capacitor should be plugged into the Zu socket, and the bridge balanced at the receiver's lowest frequency. The jX value can then be calculated from the equation:

$$jX = -10^6 / (2\pi C)$$

where C is the capacitance of the standard in pF.

Some examples of standard capacitors and their jX values:

APPENDIX
REACTANCE RANGES FOR DIFFERENT C1 AND C2 RANGES

Variable C	C1 and C2 Range (pF)	Shunt	Reactance Range ± MHz ohms	± ohms @ 28 MHz	3.5 MHz
2-12		27	1407	50	400
		33	1011	36	288
		73	250	9	72
3-40		46	1398	50	400
		57	1012	36	288
		132	254	9	72
4-50		49	1396	50	400
		61	1015	36	288
		146	249	9	72
5-70		54	1414	50	400
		69	1006	36	288
		168	251	9	72

C (pF)	jX (MHz-ohms)
114	—1400
133	—1200
159	—1000
199	—800
265	—600
318	—500
398	—400

Once the scales have been graduated, the noise bridge is ready to put into service — ready to measure the impedances of all the antennas at the station, and perhaps of that can of oil over there in the corner which gets so hot when the "full legal" power is fed into it. If the dummy load does not measure as 50 + j0 ohms, do not be too surprised. The fault will not be in the noise bridge! *Even a little dummy load built into the back of a PL259 could measure slightly reactive, particularly if all the necessary precautions for minimising inductance during its construction have not been taken.*

CONCLUSION

The jX noise bridge has been described. To build one should not be too large a project for the average amateur; nor should the understanding of its principles and operation be difficult. It is realised that long division is becoming a lost art, so an electronic calculator may be needed so that jX readings can be divided by f to produce a reading of R + jX.

There may be an advantage in choosing larger variable capacitors to start with, in that calibration could be easier and the shunt values less critical.

With the smaller capacitors, and careful design of the toroidal output transformer, it is possible that a bridge could be built to measure at VHF, although the accuracy would be limited by the stray capacitance, particularly across the potentiometer.

An obvious refinement to this noise bridge would be to switch in alternative shunt capacitors to provide alternative MHz-ohms ranges. Special care would be needed to keep down the stray capacitance, from the switch to earth, in this case. ■

THE NORTH WEST RADIO SOCIETY

PO Box 283, Port Hedland, WA 6721

Nets: Thursdays and Sundays, 1200Z, 3.605 MHz. Weekends 28.445 MHz.

Club Station: VK6ANW.

Repeater: VK6RNW, Channel 8 (expected to be operational mid-1981).

Current Office-bearers are:—

President: M. Dunning VK6WV.

Secretary: J. Farnan VK6NPH/ZPH.

Treasurer: N. Homer VK6NU.

Awards Manager: R. Sherington VK6NRS.

The North West Radio Society was formed at the end of 1979 with the broad aim of recognising the common interest of a number of old and new amateurs who found themselves living and working in the north-west of Western Australia. Over the past 18 months members of the Society have been located in Kununurra, Koolan Island, Port Hedland, Karratha and Newman. A Chapter of the Society was formed at Newman in 1980.

Most of the Club activities of the Society have been organised in the Port Hedland area, and members have been involved in —

Jamboree on the Air (1979 and 1980).

A weekend camping trip.

Emergency assistance to civil authorities during a cyclone.

Construction of Club station and antennas.

Club participation in Remembrance Day Contest 1980.

Organisation of the North West Award.

Membership mobility is an aspect of life in the north-west, and the Club tries to maintain contact with members who have moved to other places in WA or beyond.

The winter months are popular for tourism in the north-west, and the 3.605 MHz net has welcomed many amateurs from interstate. ■

HELP WITH INTRUDER WATCHING

Amateur Radio in Japan

P. L. Rodenhuis VK2AHB
50 Lawson Pde., St. Ives, NSW 2075

My interest in Japan commenced eight years ago when I started a night-school course in the Japanese language in Newcastle. Arising from the classes was the formation of an Australia-Japan Society in Newcastle. I was the founding Secretary, a position I had to relinquish when I moved to Sydney in 1977. Early in 1977, I studied for and received an Amateur Radio Licence. One of the motives for obtaining the licence was the opportunity to practice Japanese conversation with the numerous Japanese amateurs.

In 1980 I applied to the Australian-Japan Foundation for a Travel Grant in order to visit Japanese amateurs, examine their living and radio operating conditions and to talk about Australia and Australian amateurs. In May, 1980, I was informed by the Foundation that my application had been successful.

IN JAPAN

I arrived at Narita Airport on Friday, 3rd October. After transferring at Haneda, I flew to Kumamoto, where I met Tomita-san. He lives in an old farmhouse in the country, about 30 km north of Kumamoto City. Here I had the first of many meetings with Radio Clubs. About 12 people attended the meeting, which was a dinner meeting held in a restaurant.

From Kumamoto I travelled by bus to Kukuoka, thence by train to Kitakyushu for another meeting with about 15 amateurs. The next day I left for Hiroshima by the Shinkansen or Bullet Train. Another meeting was held here, with the Hiroshima Amateur Radio Club. This schedule of travel, sightseeing and meeting took me through Osaka, Kyoto, Kobe, Wakayama,

Shingu, Nagoya, Tokyo, Nikko, Fukushima, Shinchi, Sendai, Kakunodate, Mutsu, Aomori, Sapporo and Sunagawa. Fifteen meetings were held, with members ranging from four to 43 people.

In every instance, the friendship and hospitality was overwhelming. Often the host took a day's holiday from his five day allowance to conduct me on a sightseeing tour of his area.

The range of occupations of the hosts included servicemen, teachers, businessmen, electronics engineers. Incomes and houses varied accordingly.

In the month I travelled Japan, I stayed with 23 different families. In many of the 23 homes at least one grandparent was living with the family. The number of children ranged from one to four.

I had previously written to the Japan Amateur Radio League requesting assistance in arranging meetings with some of the 1500 Radio Clubs in Japan. I was referred to Tomita Iwao JA6BLV, an English teacher in Kumamoto, Kyushu. He is the Japanese Co-ordinator for International Amateur Radio Hosts, as well as being the President of the Kumamoto-Australia Friendship Society. This introduction was very fortuitous. Tomita-san was very helpful in arranging hosts in many cities for me. The total number of hosts, including friends I had met previously was 23 (17 of whom were amateurs).

As I wanted to see as much of Japan as possible in the time available (one month), I set myself a very busy schedule, covering three of the four main islands.

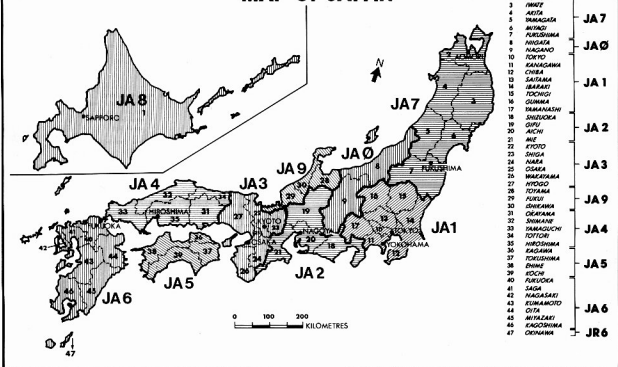
At present, most of the amateurs in Japan cannot speak English, so they converse amongst themselves. A minority of Japanese can speak English and do so on the radio, however, in most cases it is limited to very basic conversation which becomes stereotyped. By using my book (see map caption), Australian amateurs will be able to express the same conversations to the Japanese, who certainly appreciate any attempt to speak to them in Japanese. My hope is that, once such conversations start the Australian and Japanese amateurs will help each other, so that the conversations and friendships will develop.

Japan has about 400,000 amateurs, not all of whom are active. Even though a minority operate on the shortwave international bands, they still constitute a large number. From various comments I had heard on the air from time to time, it seemed that the Japanese amateur was not popular. To gauge the opinions of Australian amateurs towards the Japanese, I sent 70 questionnaires throughout Australia. Fifty-six replies were received, which surprised me. The results of the survey also surprised me, as the attitudes were not as unfavourable as I had imagined.



A meeting of amateurs and students at Shingu, Wakayama — JA3 country. Forty-three in attendance.

MAP OF JAPAN



Taken from the author's book "QSO JA NOW", an introductory text on Japanese conversation for Radio Amateurs, published by West-lakes Amateur Radio Club. The book is being reviewed for AR.

The houses were generally small by Australian standards, usually two storeys. The lower section usually contained the entrance, living room, kitchen, bathroom and toilet, while the bedrooms were upstairs. The houses are built on flat ground, even if the plot has to be built up with stone walls and filled in. Housing blocks are about two hundred square metres or 20 x 10m. The houses are usually constructed of timber. Broad slats are nailed to the framework with gaps left between. They are then covered with plaster. This light form of construction is necessary because of the ever-present danger of earthquakes.

The entrance hall is a tiled area where shoes are taken off and slippers put on. The floors of the halls and kitchen are usually polished wood, while the living room is tatami (rice straw mats, 1.8m x 0.9m) or carpet. Slippers are never worn on the tatami and often not on carpet either, so they are left in the hallway outside the door. Special plastic slippers are left inside the toilet door to wear whilst in there. It is very much frowned on to leave the toilet whilst still wearing the "toirei surippa".

The living rooms usually are quite small and cluttered. The TV has pride of place of course. A low table is set in the centre of the room, and meals eaten with the

TV on — breakfast-time also. On only two or three occasions did I eat at a regular table in a Japanese home. In winter, a heater is attached under, and a rug placed over the low table. The family sits around the table with their legs under the rug. This is usually the only form of heating in the house.

The radio "shack" often consisted of a corner of the living room, although the wealthier hams with large houses often had a separate room set aside for radio. Equipment was all commercially manufactured, and some "shacks" were very impressive with a large array of transceivers.

The area of Honshu, west of Tokyo, including Osaka, Kobe, Hiroshima, was very crowded and industrialised, with air pollution being extremely visible. In contrast, the north-eastern region called Toohoku, was very rural, with little industrialisation, hence little pollution.

As is the case world-wide, the residents of the rural areas seemed friendlier, easier-going than their city dwelling counterparts. However, the overall feeling, irrespective of area was one of hospitality and generosity. Apparently every visitor to Japan has a story about the kindness of the Japanese. My story starts at Osaka station, one Monday night about 7 p.m. I was waiting to go to Tennoji, from whence

I was leaving the next morning. As I stood on the platform with my luggage, a young man in front of me turned around and asked in English where I was going. When I told him Tennoji he replied he was also going there. We chatted on the train — I asked him if there were any hotels near the station. He told me there were, and when we reached Tennoji he escorted me to the hotel across the road. There were no vacancies so he enquired if there were any other hotels in the area. He was told a Japanese Inn was nearby, so he rang the Inn to enquire if there was a vacancy. There was, so he helped carry my luggage 200m to the Inn. There we decided on the room and cost. After all this was settled, I invited him to come for a drink. We went to a bar, had several dishes and beers and talked about many things (in English). After about two hours we left, but he insisted on paying for it all!

AMATEUR RADIO IN JAPAN Licensing System

The licence classes for amateur operators are First Class (Joo kyuu menkyo), Second Class (Ni kyuu menkyo) and the Third Class (San kyuu menkyo). These are called Denwa kyuu menkyo and Den shin kyuu menkyo.

The Phone-CW licences have a power restriction of 10W supplied to the antenna. All bands except 20m may be used. The

Phone licence does not have a CW test. The CW licence has a test at 25 letters per minute or about 5 words/minute, the same as our novice licence. Before sitting for the test, the students attend courses conducted by the JARL. These can be over a period of months, or an intensive 10-day course held during holidays.

The rigs are approved by the JARL, so no inspection is necessary.

The Second Class licence has a higher level of electronics examination and regulations, and also has a CW test of 45 letters/minute. The power allowed to the antenna is 100W.

The First Class licence is very difficult, with a further exam in electronics, CW at 60 Roman letters/minute, and also 50 Japanese characters/minute. This Japanese "Morse" is called Wabun. The First Class licence holder may then use 500W antenna power.

When the Second and First Class licensees want to set up their station they must have an inspection by the local RI and pay a fee which is on a sliding scale, depending on the power. Also, before being able to use another mode such as RTTY, Oscar, SSTV, etc., they must pass an examination and have an inspection of the equipment.

One First Class licensee I met in Kitakyushu had neglected to renew his licence (after about 18 years). He then had to go through the procedure of inspection again and, because he was using 500W, his fees were about \$80!

Number of Licences

Everyone knows there are a lot of JAs on the air, we've all heard them. However, from my inquiries it would seem that only about 10 per cent of JAs talk to DX stations. The vast majority are on 2m simplex (there are no repeaters). The JARL Tokyo office supplied me with the following numbers of licences issued. (They don't use the call signs as we do.)

First Class	7902
Second Class	32935
Phone	725847
CW	55106

825790

Again, this is the number issued, not the number active. The JARL says many Phone Class licences quickly become bored (frustrated?) on 2m, so after a few months they give it away. JARL estimate maybe only 300,000 to 400,000 are active, with about 100,000 belonging to the JARL.

Operation in JA by Foreigners

The JARL supplied me with some information on the possible operation by foreigners in Japan. I had previously written to the JA P. and T. Department asking about this, and had been told that as VK and JA did not have reciprocal agreements, I could not operate in JA.

The Radio Law of Japan states that, as a general rule, a foreign radio operator is prohibited from establishing and operating a radio station by himself.

However, if there is a reciprocal arrangement between the Governments of the two countries, then the foreign amateur may use a Club Station, "even if the foreign amateur is not qualified as a radio operator prescribed in the Radio Law of this country".

At the end of this article is the procedure to be followed by a foreigner wishing to transmit in Japan.

Equipment

All transceivers I saw were commercially made, mainly Yaesu or Kenwood (Trio), with some Collins and Drake seen. A very small minority of operators use modes other than SSB, so very few examples of home-brew equipment were seen. The place where I did see some was in those stations where the operator used RTTY, SSTV or ATV.

As I mentioned before, the operator must undergo an examination and inspection before he can use alternative modes. RTTY is not very common in Japan, the main reason being the lack of disposal Teletype equipment for beginners to cut their teeth on. I saw one huge ex-railway monster which uses a 6 bit code. The friend who has it is building a 6 to 5 bit converter. The advent of microprocessors, VDUs, etc., will make it a lot easier (if more expensive) for JAs to get on the air with RTTY. Yaesu have recently introduced a line of RTTY/ASCII/CW readers, keyboards, etc., so this may be the start of an upsurge in JA activity.

Antennas

As the vast majority of JAs use 2m, it was that type of antenna that I saw most frequently. 7 to 10 element Yagis were common, often in 2 or 4 stacks. I did see one 8 stack.

Large HF antennae were not seen often, although just about every major town I passed through had a couple visible from the train. Roof towers were a very popular means of getting the antenna into the air. This had the advantage of not using any precious space in the small yard. Still, I saw many towers, from 10 to 30m high. Many of these were "crank-up" types, so that the antenna could be lowered before a typhoon came. When I was in Wakayama a typhoon came, and all the antennae had been lowered or tilted over and tied down. The 30m tower I saw belonged to a farmer in Oyama, north of Tokyo. His name is



L. to r.: Saitoo JH7XAO, Katoo JE1NOH/7, author at Saitoo's QTH, Fukushima.

Masa JAICPX. He runs Collins S line with Heath Linear. The base of the tower is about 3m square, and is set in concrete about 2m deep.

The prize for the best antenna system would have to go to the JA7 who lives in Aomori. He has a full size 3-element yagi for 80m! The boom is 16m long and the elements 22m—a very impressive sight even by torchlight. Alongside was a 7-element yagi for 15m, also with a 16m boom.

EXTRACTS FROM THE NOTICE CONCERNED WITH THE OPERATION BY A FOREIGNER OF THE RADIO EQUIPMENT OF AN AMATEUR STATION

Of the Notice which the Ministry of Posts and Telecommunications has issued to prescribe the procedures for and conditions of the operation by a foreigner of the radio equipment of an amateur station in this, only the matters relating directly to such operation are given below, for some preliminary knowledge on the subject.

1. A foreigner who has an intention to operate the radio equipment of an amateur station in accordance with the provisions to be applied to this purpose of operation, shall be registered as such at the Ministry of Posts and Telecommunications by the submission of:
 - (a) an application for the registration to operate the radio equipment of an amateur radio station in a fixed form;
 - (b) the certificate for the technical ability to operate any radio equipment of an amateur station issued by the government of the state concerned, or its authorised copy; and
 - (c) any note issued by the consul living in Japan of the state to which that foreigner's nationality belongs for endorsing that the certificate is the genuine and effective one.
2. A foreigner who has been thus registered under the above paragraph (1) may operate the radio equipment of an amateur station in accordance with the pertinent provisions on the fixed conditions:
 - (a) that the operation shall be conducted under the command of those first, second and/or third class service radio operators and first and/or second class amateur radio operators associated with the incorporated body to which that foreigner belongs as a member; and
 - (b) that the operation shall be limited within the operational scope of the radio equipment to be considered as appropriate in the light of the qualification expressed in the certificate that the foreigner holds and further the scope in which the commanding Japanese radio operators may operate the radio equipment.

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National Third Party Amateur Radio Network

Sam Voron VK2BVS
2 Griffith Ave., East Roseville 2069, NSW

Since the introduction of Third Party privileges to Australian amateurs, a National Third Party Net has evolved, with some (few) teething problems. The following article gives suggestions and operational ideas for the successful conduct of the net. The net operates daily on 3570 kHz at 1130Z.

1. The net has adopted the same policy used by Australia Post and US amateurs, i.e. all care taken but no responsibility accepted.

Before accepting a message the public is made aware that amateur radio does not guarantee delivery or accuracy of transmission. For most messages involving casual greetings and well wishes, this is of little concern, however if the content of a message is critical or delivery imperative, then the general public are advised that the commercial and public communications network may be a more appropriate medium for the transmission of their message.

It is hoped that a national standard message form similar to that printed by the ARRL for US amateurs would in due time be available to all amateurs in Australia through the WIA.

2. The operation of the net has shown that untrained amateurs can get together and very quickly learn the minimal requirements of basic traffic handling. Certainly WICEN personnel should advise and assist by joining or organising on-air sessions, however the handling of traffic should be open to all amateurs so that every Australian amateur has the chance of gaining minimal experience in message handling whether he is a competent WICEN/SES operator or not.

3. The net exists to take the ordinary amateur to a minimal level required for the proper handling of traffic. The net allows any amateur to learn a basic format and route his own message. It allows amateurs to learn in a fun and challenging way and takes the time to discuss the ins and outs with new participants.

There is no question of poor operating, just an opportunity for every amateur to learn a basic skill (message handling) which can be used in the daily service of the community (by those participating), or whenever required (by those listening).

4. In the US the Amateur Radio Public Service Corps is divided into two parts. The Amateur Radio Emergency Corps is the emergency preparedness group of 30,000 amateurs who have signed up to keep amateur radio in the forefront along preparedness lines (like our WICEN group). The other section is the National Traffic

System, which allows all amateurs to participate in traffic work to whatever extent they wish, from an occasional message now and then, to becoming a part of organised traffic systems. (This is what the national third party amateur radio network is facilitating.)

Some WICEN co-ordinators have joined in the network and commented that such a net has the capacity to take all amateurs to a basic level of message handling procedure.

On one of the early net sessions a member of the NSW WICEN committee offered to look at suggestions for a standard third party "amateur radiogram" for use by Australian amateurs, who may only have the minimal of training in message handling. Ideas sent to our local WICEN committee include the concept of compatibility between WICEN, NTPN and NTS (for the day when international third party traffic is permitted into the USA and Canada).

A simplified WICEN message form has been suggested as a possibility.

Net participants have adopted a temporary message form until a national third party "amateur radiogram" format is agreed upon.

5. The net provides a nightly forum for experimentation in procedures and methods—the criticisms which arise and the knowledge gained by all those participating and those listening should be invaluable in the setting up of a permanent message handling network.

6. Third party traffic can be passed either within a net which has been formed to facilitate it (e.g. the third party net), or on a freelance basis (outside the net). All net participants are advised to keep a copy of messages for 12 months in case inspection is required.

This is the standard practice in the US whose relevant regulations we operate under at the present time.

Co-ordination and control should be the responsibility of the amateur radio service, with D. of C. providing the broad framework.

From the first day the net was functional the D. of C. both in Melbourne and Sydney and the WIA office at both capitals were notified and invited to tune in and hear how amateurs were using the new privilege.

The only comment I would expect from the department would be in relation to the carrying on and purposeful jamming by obviously licensed unidentified amateurs.

I heard exactly this same behaviour during this century's worst hurricane a few

months ago on a similar net carrying emergency US traffic into and out of the affected areas on 20 metres.

In both the Australian and US case, it's horrifying to realise that it's not just one person but several. Secondly, they are quite obviously licensed amateurs. To my surprise I learned that the incredible interference on the 2 metre Sydney repeaters over the last three months is also due to a licensed amateur.

When this type of behaviour arises there must be amateurs who know who these people are. It is the amateurs who knowingly allow fellow amateurs to operate and carry on anonymously on our amateur bands who must accept responsibility for the shame it brings upon us all.

I commend the following statement from the Council of the NSW Division of the WIA, which was printed as a NSW insert in September 1980 AR.

"Council urges all amateurs to refrain from openly acknowledging the presence of illegal operators on amateur frequencies. Amateurs are asked to note relevant information which may help the authorities in the apprehension of such offenders, and should communicate same in writing to the Department of Communications." (and I might add, send a copy to your Division's Council so they can ensure that appropriate action is being taken.)

7. Our thanks and recognition of what the WIA has done.

The third party traffic privilege is not only something which will launch us into a new era where amateur radio and the citizen in your local street or town will be seen in a closer more personal context, but it is now a story which shows how only the WIA has the infinite patience to keep pushing for what amateurs want, even if it seems impossible to achieve. With this attitude you must get what you want at the end, and the WIA did.

Clearly if we amateurs want something the WIA is the only body who has the time and resources to get it for us.

By taking the privilege with both hands and experimenting with the extent of its possibilities, the ordinary amateur radio operator is in effect thanking the Minister for the immediate grant, the WIA for making it all possible, and displaying that initiative and experimental flavour which makes amateur radio so exciting today.

The novice licence is introduced and you think you have seen it all. Then suddenly third party privileges, and a whole new range of possibilities for amateur radio add yet another new dimension to our hobby.

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For today we are in the early days of a new privilege, only experimenting and forming no permanent structure. Join in each evening at 1130Z on 3570 kHz \pm QRM on the National Third Party Amateur Radio Network.

EDITOR'S NOTE:

The National Third Party Net is the innovation of the author and, at the time of publication, has not been officially sanctioned by WIA Council. This matter will be brought up at the next WIA convention, where it is hoped broad guidelines and rules of operation will be made to the benefit of all amateurs, and the hobby in general. In the meantime, it is suggested that the net continue on the basis already in existence.

The experiment gained by those operators participating in these early stages will be vital to the formulation of a firm policy in the future.

Do give the lads a free uninterrupted channel, the success or failure of this new privilege depends entirely on how we conduct ourselves.—VK3UV.

And What About Junk Boxes?

I was reading an article the other day on how to build a small portable transmitter when I came upon the phrase, "the whole outfit should not cost much as most of the parts can be culled from the junk box . . ."

It occurred to me that there could be readers of the article who would never become satisfied builders for the simple reason that they just hadn't got a junk box! You, Sir (or you, Madam), may be a hardened radio amateur and thus already have a box of splendidly varied junk, ancient and modern, collected over the years. In fact you may even have several junk boxes, as I have, chockful of valuable and, in some cases, irreplaceable rubbish. (For instance, I have a number of large air-spaced variables that, as they stand, make excellent toast racks.)

How difficult as it may be to believe, there are people who have virtually *no* junk at all. They have to make do with a commercial transmitter and receiver and do not have even one loose resistor with short wire ends! So what can these people do when they are confronted with a constructional article such as I have mentioned? You may be saying that if they have commercial gear they are not interested in building stuff, anyway. Don't you believe it! Deep down inside the most rabid commercial-gear type amateur there lurks one who would build everything he needed — from a loop lamp indicator up — provided he had the time. And a junk box.

Some enterprising manufacturer should therefore market a series of junk boxes to

fill this long-felt want. The Junior Kit for the young impecunious — or perhaps even the old impecunious but just starting amateurs would retail at about, say, \$1.10 and consist of the following:—

One stout cardboard carton as used for carrying butter (say).

One dozen assorted resistors with short ends (some open circuit).

One dozen capacitors, mainly electrolytic (over 50 per cent very doubtful).

Three dozen assorted nuts and bolts (none of which fit anything).

One ounce mixed fluff, used matches and dust.

Two peculiarly-shaped metal brackets.

To follow in the series there would be five other junk box outfits up to a ceiling price of \$4.99 maximum — this last would, of course, be the *de luxe* offering, containing many surprises, such as an electric drill with a burnt-out field winding. The box holding the *de luxe* outfit would be of real wood, finished in a pleasant shade of olive drab, complete with carrying handles and original US lettering inside and out. Of course it would also be possible to start with the junior box and add to it by buying Supplementary Kits 2A, 3A, and so on.

I was going to deal with our very impecunious friends in my next article, but I know and appreciate how galling it can be to read the words "Next month I shall be dealing with 'Starting Your Own Junk Box'". So I have decided to give those who would be unable to afford even the Junior Kit a few hints immediately.

Begin by visiting some of those old relatives of yours you haven't seen for years and ask if they happen to have an old broadcast receiver for disposal. When you get one, remove the chassis and hack it to bits. Yes, it must be *hacked* because some of the parts will be worn out anyway, so it's a waste of time to unsolder them carefully. You will now have before you a pile of junk. Put it all in a box, which can be cardboard, wood or metal. It is not necessary to have a lid — in fact, I think a lid is undesirable because you can't look at what you've got. And what have you got? A junk box of your very own!

From here on you can't miss. Any lump of surplus gear you come across at a reasonable price — buy it and dismantle it right away, so that you can add another layer to your box. It's a fascinating hobby in itself. You'll wonder what you ever saw in rag-chewing or DX chasing.

My next article will be a constructional one, describing how I looked at what I'd got in my junk box and made a rig *which fitted the parts available*. To save agonising speculation I'll tell you right now what the rig is. Actually it isn't exactly a rig — it's a reservoir capacitor shorting stick with a holder and should be handy for anyone provided you wear gloves when using it — G3COI (adapted from SWM January 1963) (Westlakes Newsletter December 1980).

A Review of the Yaesu FRG-7700 Receiver

Ron Fisher VK3OM



The Yaesu Corporation has over the last few years established itself as a leader in the field of general coverage communications receivers. The original FRG-7 was the first receiver to incorporate the Wadley Loop principle in a popular priced receiver that actually looked and handled as a communications receiver should. Many might question this and suggest that the South African produced Barlow XCR-30 was the first. However, while this was certainly an excellent all wave receiver, it could not be called a communications receiver in the true sense of the definition. Why Barlow never went ahead with their rumoured version of the XCR-30 will perhaps never be known, but they certainly missed the boat. Yaesu undoubtedly saw the opportunity and came out with the incredibly successful FRG-7. This set the standard for some years. The updated FRG-7000 did not appear to achieve the popularity of the earlier model. The new FRG-7700 sets a new standard and we predict that it will be a top seller for Yaesu.

Let's take a good look at the FRG-7700 and see what it offers the ardent SWL or amateur who requires a good general coverage receiver. Operation has been greatly simplified with the elimination of the preselector tuning. This is now taken care of electronically along with the MHz selector switch. An LED digital readout indicates frequency to the nearest one kHz point. This readout also doubles as a clock. Certainly a first in the popular priced receiver is the optional memory unit which

will allow up to 12 frequencies to be programmed for instant recall. Unfortunately our review receiver did not have this feature included, so we are unable to report on its actual operation.

Another first is the provision of all mode reception which includes not only AM, SSB and CW but also FM complete with squelch control. The addition of a simple converter for your favourite VHF band will now give all mode coverage. Perhaps in the future Yaesu might even produce a suitable device to give general coverage up to say 200 MHz.

One of the slight problems with the older receivers using the Wadley Loop system was the strong internally generated carrier on each MHz point. The new receiver has changed to a PLL generated heterodyne circuit coupled to a 48 MHz first IF which completely eliminates the problem.

Broadcast band DXers on both short wave and medium wave are well taken care of with three positions of selectivity, 12, 6 and 2.7 kHz at the 6 dB points. SSB selectivity is also 2.7 kHz at 6 dB with a rather wide 8 kHz at the 50 dB point. FM bandwidth is rated at 15 kHz.

Other features are: AGC fast or slow selection, noise blanker, dial light and frequency display dimmer, constant output record jack, variable RF attenuator and clock switching for the receiver and external accessories such as a tape recorder. A nice feature is a band switch segment that allows sequential switching of all the

amateur bands, including the new WARC allocations.

CIRCUIT FEATURES

Antenna input connections are via an SO-239 coax socket for 50 ohms inputs or via separate push down terminals for long wire antennas for either short wave or broadcast band/long wave reception.

The front panel attenuator is connected between the antenna and the input to the front end band pass filters. These are automatically switched for the following ranges: 150 kHz to 1 MHz, 1 to 2 MHz, 2 to 4 MHz, and 4 to 8, 8 to 16 and 16 to 30 MHz.

The RF stage, a 3SK73GR dual gate MOS FET is followed by a buffer stage into a balanced first mixer using two FETs. A double conversion system is used converting first to 48 MHz and then 455 kHz with both heterodyning signals supplied from the P11 system.

WIA

FEDERAL EMC CO-ORDINATION

- Tony Tregale VK3QQ, is the Co-ordinator
- Do you have any interference problems? (power-line, TVI, AFI, etc.)
- If so, send details to:

VK3QQ — QTHR
or via

WIA Executive Office,
Box 150, Toorak 3142



View of digital read-out S meter.

The 48 MHz IF has a 20 kHz bandwidth to reduce cross modulation effects. This is obtained from a special 48 MHz crystal filter. The second mixer is also balanced but this uses two dual gate FETs. Yaesu designers have gone to considerable trouble to keep spurious signals to a minimum. A second 20 kHz filter follows the second mixer at 455 kHz to give improved noise blanker operation. Three ceramic filters are switched by the front panel mode switch to obtain the SSB and three AM bandwidth positions. In the FM mode, output is taken from the 455 kHz IF section at the 20 kHz filter and then taken to a separate FM IF and discriminator circuit. The audio output is rated at 1.5 watts output and is fed to either the internal speaker or to a 3.5 mm jack for an external speaker or to a front panel mounted 1/4 inch phone jack for headphone output.

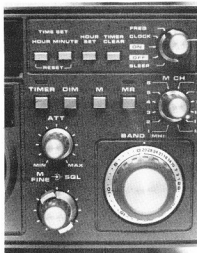
THE FRG-7700 IN USE

The receiver is simple to operate and it takes only a short time to become familiar with the various controls. A quick check on the standard broadcast band showed up excellent quality AM reception. Dropping down to 398 kHz to listen to the terminal information from the local airport distant

about 15 km provided a surprise. I could not locate it through the broadcast cross modulation. My old (very) tube type receiver pulls it in loud and clear. Things improved as the receiver was tuned higher and once above 2 MHz, cross modulation performance was rated as excellent. About this time, I noticed that the dial and S meter illumination was rather dull. I pushed the dim button and it almost went out. Please, Yaesu, boost up the dial illumination. The tuning was smooth and very free of backlash with a similar feel to the FT-101Z. But a surprising thing is the very non-linear tuning. The tuning rate varies almost two to one, depending on which part of the range you are in.

The low frequency end of the scale to about the 300 kHz point covers almost twice the scale length as compared with the middle section. The action of the RF attenuator was somewhat ineffective. It didn't do anything to help the cross modulation mentioned earlier on the low frequency band and wasn't needed on the short wave end. A more useful control would be an RF gain of the threshold type, similar to the FT-101Z. However full marks to the AGC fast/slow switch and an excellent tone control that provided adequate high frequency cut. This control is ganged with the audio gain control but one may be used without effecting the other. Frequency readout was checked and found to be spot on when in the AM mode but an error of around 1.5 kHz occurred when receiving SSB due to the fact that the BFO oscillator is not counted for the frequency readout.

We compared the sensitivity with an FT-101Z and found that any signal copiable on the 101 was there with equal readability on the 7700. But on the higher frequency bands the S meter of the 7700 was very



Band switch showing separate amateur band and general segment.

reluctant to move off the stop. It took something like an S 7 indication on the 101Z before the meter of the 7700 would show any sign of moving. It would seem that the overall gain of the receiver is just a bit too slow. The general resolution of SSB signals was excellent and the AGC action in the slow mode ideal.

The receiver was checked for spurious signals and found to be very clean. Only two of any significance were found, one at 18.675 MHz, the other at 23.572 MHz and both of these all but disappeared with the antenna connected. There were others audible with the antenna disconnected, but quite inaudible with the antenna on.

Perhaps one other small point. Why not a 24 hour clock display, or better still a choice of 12 or 24 display?

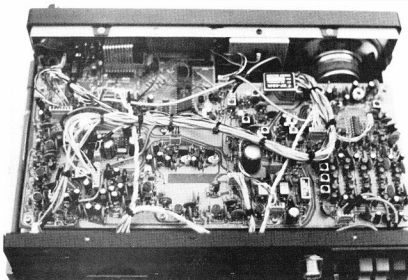
All in all the 7700 proved to be a smooth performer at which only minor criticisms can be levelled. I am sure that Yaesu will sort these out in the near future.

INSTRUCTION BOOK

It seems that the Yaesu instruction books are getting better all the time (perhaps the others are getting worse).

There is plenty of well illustrated information on operating the receiver. But best of all, plenty of data on maintenance and alignment. While it is probably true that most people would not attempt to align their receiver, this section does a lot to help owners to understand the operation of their receivers. There is also an excellent description of the circuit.

A full parts list and clear schematic diagram is included. Our receiver was supplied by Bail Electronics of Wangaratta.



Top view of receiver.

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The Trinity Loop Antenna

Bruce Hannaford VK5XJ

This is a new development of the original Trinity Antenna also designed and described by the writer in *Amateur Radio* in July 1975. Where the original design was a normal open-ended antenna, this is a closed loop system. The name Trinity is derived from the fact that the antenna is in effect three antennas in one. The antenna is directionally steerable by switching to any one of the "three" fixed antennas. The system may be used multi-band.

BRIEF DESCRIPTION

The Trinity Loop Antenna consists of three vertical "half" loops, equally spaced 120 degrees apart around a central point with their open ends at the centre, any two of which are combined by switching to make a complete "active" loop and thus giving three horizontally polarised bi-directional patterns.

From a bird's eye view the tops of each individual half loop are like spokes of a wheel extending out from a common central point. See Fig. 1.

The loops will normally be fed by a balanced feeder at the bottom central position where the open ends of the half loops are terminated, with this arrangement switching can be simplified by joining together the three top ends of the half loops at the top central point. The loop system now has three terminals at the bottom centre position and the directional changes are accomplished by switch selecting any two of these three terminals for connection to the equipment. The switching may take place at the loop terminals or a three wire Trinity feeder may extend from the loop terminals to the switching point. After switching takes place connection is usually made to a balanced tuner and then via coax cable to the equipment.

The main advantage of the Trinity Loop system is that it avoids the dead spots that occur with a normal single horizontal polarised antenna. With the Trinity Loop it is possible to get a good directional lobe in any desired direction. Compared with a good trapped vertical or a single fixed dipole the Trinity Loop will show an average gain of one or two S points. To equal the Trinity it would be necessary to erect at least three separate fixed antennas occupying extra space and using twice as much antenna hardware.

THEORY OF OPERATION

Under any switching conditions two half loops will be combined and the active loop thus formed although bent at 120 degrees in the centre will function quite well in transmission or reception. The disused half loop will have one side connected to a central zero voltage point on the active loop and will have its other side open circuit. Because this disused half loop is subject to approximately equal and opposite fields from the two active half loops any RF pick-up from them will be minimal and the disused half loop will have very little effect on the active loop.

Where Trinity three wire feeders are used to reach the switching point, at any one time only two of these will be in use and the third due to the triangular arrangement of the feeder wires is subject to approximately equal and opposite fields from the active two and thus will not affect them or couple any appreciable power into the disused half loop to which it is connected.

Resonate loop lengths will be the most common practice but non-resonate lengths combined with a suitable tuner can be used.

TRINITY FEEDERS

A cross section of a feeder will show a

triangle like arrangement of the three wires which are equally spaced from each other. Of course the feeder impedance needs to be appropriate for the loop terminal impedance and the tuning arrangements at the frequency or frequencies to be used. If the active loop is an odd number of electrical half waves in length at the operating frequency it will need high impedance feed and if an even number of half waves low impedance feed will be required. For example if the active loop is an electrical full wave on 40 metres it will require low impedance feed on 40, 20, 15 and 10 metres.

Low impedance Trinity feeder can be

FIG. 1. SOME EXAMPLES OF TRINITY LOOP SWITCHING

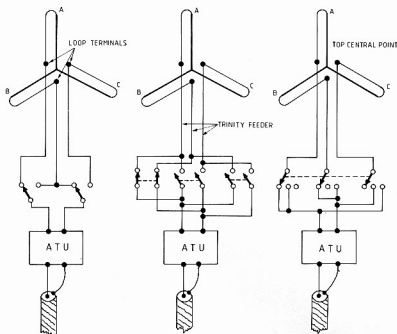


FIG. 1a

TWO SEPARATE SPDT SWITCHES. DON'T USE THE POSITION THAT SHORTS THE ATU!

FIG. 1b

THREE SEPARATE SPST SWITCHES. USE ONLY ONE AT A TIME.

FIG. 1c

THREE POSITION THREE BANK SWITCH.

In all the above, half loops A and B are shown connected, in use. The loops are drawn viewed from above. Tops of loops are shown as thick lines, bottoms as thin.

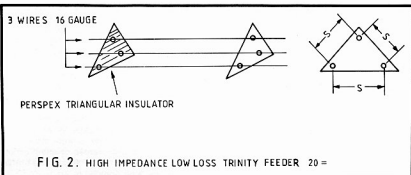


FIG. 2. HIGH IMPEDANCE LOW LOSS TRINITY FEEDER 20 =

simply three insulated wires twisted together, household electrical wire rated at about 15 amps is usually suitable. Some types of heavy three wire flex may also be suitable. Before using such a feeder, test the RF losses at the highest frequency to be used.

Three lengths of coax cable run side by side can be used, the three inner conductors go to the loop and switching terminals and the braids join together at each end of the runs and are earthed at the equipment end.

High impedance Trinity feeder can be made by using triangular insulated spreaders with an anchor hole at each corner, or very short pieces of about 50 mm plastic pipe with three anchor holes equally spaced around the circumference.

All the above remarks relate to reasonably low power transmissions. Keep the feeder as far as possible from the nearest antenna loops. (For higher power transmission objectional heating of some feedlines could occur. It is good practice to use low loss feeders for any power level of course.—Ed.)

SWITCHING

Various forms of switching can be used remembering that low impedance means low voltages with high current and high impedance means high voltages with low current. Usually it is preferable to do the switching at a low or medium impedance point to avoid high RF voltages.

Quite small switches or relays can be used with low impedance circuits but large high voltage switches or AC contactors may be needed for high impedance circuits.

When relays with long DC control lines are used these lines should be broken into non-resonate lengths with RF chokes. (Alternatively they should be screened.—Ed.)

Basically we need to select any two of the three loop terminals and connect these via a two wire connection to the ATU or equipment. A number of examples are shown in Fig. 1.

PRACTICAL CONSIDERATIONS

Supports

A Trinity Loop can be supported on a single central pole or tower with three equally spaced short anchor posts at equal distances from it at the outer points. Each

half loop extends from a common junction point at the top of the pole to the short anchor post and then horizontally back to the centre pole where it is terminated with an insulator. The half loop will be like a V on its side.

Of course the anchor posts mentioned above need not be short and can be as high as the centre pole. In this case the half loops are run from the common junction point at the top of the central pole then horizontally to an outer pole then down parallel near to this pole and at a low level run horizontally back to the centre pole and terminated as before. The half loop will be like a flat bottomed U lying on its side.

If the three outer posts mentioned above are strong enough the centre pole can be replaced by a short central anchor post. As the three half loops join at the top centre this junction point can be suspended in mid span, once again the half loops will be shaped like a U on its side.

In all three cases the lower part of the loop should be at least 2 metres high and reasonably clear of conducting objects.

Generally speaking an active loop (on its lowest frequency) should enclose as large an area as possible and thus the ideal shape would be a circle. However, in addition to being rather impractical this is not necessarily desirable if the loop is to be operated on harmonics of its lowest resonant frequency. I believe a flat loop is preferable in this case, that is a loop that is rather wide and not very high.

A metal tower or pole at the centre is not a problem as when balanced feed is used both the centre top and bottom are at earth potential for RF, however it may be preferable to insulate the loops from the tower at the top in case of any unbalance in the loop or feed system.

It should be possible to erect an effective 40 metres loop on a 10 metre pole with outer posts of about 3 metres. This loop will work well on higher frequencies.

Switching

The most efficient point for the switches will be right at the loop terminals and the most convenient point right at the operating position. Usually as the distance from the loop terminals to the operating position need not be very great a Trinity

feeder to the operating position and switches is the best method.

ATUs

Ideally the Trinity Loop should be fed with balanced feed and so a balanced ATU or a balun is preferable, however tests have shown good results are possible with low impedance Trinity feeder fed from an unbalanced ATU. The type of ATU will, of course, depend on what impedances it will be required to match, or in other words what frequencies you expect to tune up on a given sized loop. With a very versatile ATU, open wire feeders and high voltage switches it should be possible to tune almost any frequency with almost any size loop. Normally the loop size will be chosen for full-wave resonance on the lowest frequency band possible for the amount of real estate available. This will give low impedance feed on that and all other harmonically related bands. An unbalanced ATU with a balun added should normally suffice in such cases.

USING THE TRINITY LOOP

When completed and optimum tuning settings noted for each band you are now ready to do some directional switching and note the results obtained. Do your first tests on reception and then compare reports for the same tests on transmission, usually the results will be very similar.

Be systematic about your testing, firstly name the three directional combinations 1, 2 and 3 and mark the switches so it is obvious what you are switched to and make a written record of which positions are best on a given band for each call area you normally work.

As you switch directions you may at first be disappointed as you will not get the same spectacular results as rotating a beam, sometimes it will make no difference which position you use, however on many occasions you will notice a variation of about two S points between the best and worst positions. When this happens you rejoice that you are not limited to a single fixed antenna in the position giving the weakest signal. In addition to signal gain sometimes interference can be reduced by switching to a position unfavourable to its reception.

When all positions give the same results this shows that all three positions have good lobes in the direction being worked. Remember there will be many lobes when the loop is used on one of its higher harmonics, and the best switch positions may not be the same on each band.

IN CONCLUSION

The Trinity Loop will not outperform a rotary beam but on average results taken in all directions it will outperform a single fixed antenna or even two such antennas facing different directions. In my location I also find that the signal to noise ratio is better with the Trinity Loop than with "open ended" antennas.

May your Trinity Loop work as well for you as mine does for me. ■

FORWARD BIAS

VK1 DIVISION

(Postal Address: WIA (ACT Division) Inc.,
PO Box 46, Canberra, 2600 ACT)

At the VK1 Division's Annual General Meeting on Monday, 23rd February, 1981, the following office-bearers were elected:—

President: Bill Maxwell VK1MX.

Vice-Presidents: Andrew Davis VK1DA, Fred Robertson-Mudie VK1MM.

Secretary: Theo Vidler VK1KV.

Treasurer: Kevin Olds VK1OK.

Committeemen: Ken Pyett VK1NDK, Ian Coleman VK1NDI, Cec Maloney VK1NCK.

Ron Henderson VK1RH was re-elected to his position as Federal Councillor. Attendance at the AGM was well down on the very high standard set throughout the 1980 General Meetings. The Committee trusts that this is only a temporary aberration, perhaps brought about by a reluctance among many to seek office.

Bert VK1ZAT, on behalf of the Repeater Group, reports that approval has been granted for the installation of a 70 cm repeater in VK1. A team headed by Peter VK1DS, Ed VK1VP, Merv VK1ML, Les VK1ZKL and Bert himself, made a pilgrimage to Mt. Ginini on 22nd February at 7 a.m., they would have us believe. A couple of hours was then spent digging the hole in which to plant the new electric finger. While suffering sore hands and ending up tired, cold and hungry, the crew reportedly enjoyed the chore. Ed has advised that it might be possible to have the repeater in operation before winter, provided Murphy stays home and all else goes well. The group hopes to hear everyone "upstairs" once their task is complete. ■

VK1MH — MELBA HIGH SCHOOL STATION

David Baume VK1UD (QTHR), Station Supervisor of the above High School station in Canberra has advised that VK1MH transmits in the HF bands each Wednesday at the following times: 0230-0310 UTC and 0515-0600 UTC.

The VK1MH operators — all students at Melba High — are interested in making "on air" contacts with other school stations.

At present six students attend these sessions and four of these lads also attend the VK1 Division's NAACP classes at Melba High with "Uncle David" as their tutor.

VALE VK1JK — JACK KNIGHT

It is with regret that the VK1 Division records the passing of one of amateur radio's true gentlemen — Jack Knight VK1JK — on Sunday, 1st March, 1981.

Jack was the proud father of Senator John Knight, M.P., whose untimely death occurred only three days later on Wednesday, 4th March. ■

VK2 MINIBULLETIN

ANNUAL GENERAL MEETING

The 1981 Annual General Meeting of the New South Wales Division was held on Saturday, 28th March. The meeting was opened at 10.30 a.m. by the Chairman, Divisional President Athol Tilley VK2BAD. The minutes of the 1980 AGM, adjourned AGM and EGM were adopted as circulated. The President's Report, which included as appendices the sub-committee reports of the Education Service, WICEN and QSL Bureau, was adopted as circulated at the meeting. (Any member who would like a copy of the President's Report can obtain one by either ringing or writing to the Divisional Office.)

The Annual Accounts as prepared by Divisional Treasurer David Thompson VK2BDT were adopted as circulated. Returning Officer, Roger Henley VK2ZIG, announced that seven nominations had been received and that the 1981/82 Council is: Susan Brown VK2BSB, Henry Lundell VK2ZHE, Tim Mills VK2ZTM, Jeff Pages VK2BYV, Stephen Pail VK2VHP, David Thompson VK2BDT and Athol Tilley VK2BAD. A report from the Constitution Review Committee, presented by Pierce Healy VK2APQ, was received and referred by the meeting to Council. The motion expressing confidence in the Articles of Association and thinking and disbanding the Constitution Review Committee was carried.

The motion to confer Honorary Life Membership on T. Mills VK2ZTM was lost. The motion to bestow Honorary Life Membership on G. Sutherland VK2ZSG was lost. The motions to change Articles 82 and 48c were carried and, as approval had been received from the Attorney-General, the changes were effective from the meeting (28/3/81). The motion to invest the \$500 Dick Smith auction money and use the interest to encourage and promote education was carried. The amendment to charge for circulation of minutes to affiliated clubs was not proceeded with. Roger Henley VK2ZIG was re-appointed as Returning Officer for 1981-1982. The meeting closed at 3.22 p.m.

COUNCIL REPORT

At its March meeting, Council was pleased to welcome Blue Mountains Amateur Radio Club to affiliation with the NSW Division. There are now 27 clubs affiliated with the Division. Orange Amateur Radio Club was given permission to conduct tests on relay-ing Divisional broadcasts on to local repeater channel 6700. Club members take call-backs and would appreciate reports on signal quality.

The NSW Division does not have an Intruder Watch Co-ordinator. Requests have been made on broadcasts for both a co-ordinator and others to report on intrusions by commercial stations into

amateur allocations. Are you concerned about the Russian "woodpecker"? Do you value our frequencies enough to complain when they are taken over by commercial interests? If so, Divisional Council would like to hear from you.

Council has been advised that the costs of the Tower Appeal are likely to be in the vicinity of \$3000-\$4000, as much preparatory work is required to present as forceful a case as possible. Council regards this case as a test case VITAL to future amateur applications to erect towers, and has decided to guarantee payment of legal expenses up to \$2000. To date (31/3/81), \$340 has been donated to the fund. Thanks for recent donations from M. du Feu \$20, E. van de Weyer \$20, W. Field \$5, Parkes ADARC \$10, S. Brown \$20, K. Matthews \$10 (in April AR, the \$50 donation attributed to Coffs Harbour ADARC actually came from Oxley ADARC — my apologies to Oxley). If you would like to support this fund, please send cheque made out to the WIA, Box 123, St. Leonards 2065.

Council wrote to the local office of the DOC congratulating them on the speedy issue of exam results after the February exam. Some candidates received their results by mail 21 days after the exam. Council decided that concessional membership rates for 1982 will not be less than the levies charged by the Federal WIA.

7th CENTRAL WEST AMATEUR CONFERENCE

The 7th Annual Central West Conference was held on Sunday, 22nd March, at Dubbo. Jim Edge VK2AJ0 welcomed 30

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amateurs to the meeting, which was chaired by Wally Watkins VK2DEW, Alternate Federal Councillor for the NSW Division and Federal Contest Manager.

Many subjects were discussed, including additions to the 80m band, K calls, operating habits during contests, repeaters, log keeping, third party traffic, slow Morse frequency and the 75th anniversary of the WIA in 1985. Divisional Treasurer David Thompson VK2BDT addressed the meeting on the functions and value of the WIA. The NSW WICEN Net Controller Neville Wilde VK2DR discussed the organisation and benefits of WICEN.

The meeting carried a vote of thanks to Cec Bardwell VK2IR for his valued services in teaching and correspondence. The committee also recorded appreciation for the work done by the NSW Divisional Council during 1980-81. Any member who would like a copy of the minutes of the conference, please send an SAE to the Divisional Office. (Submitted by Jim VK2AJQ.)

ATV GROUP

The first meeting of the VK2 ATV Group was held on February 23rd. Eighteen interested amateurs attended and elected George Hughes VK2ZNY as President. Future meetings will be held on the third Tuesday of each month, and new members will be welcomed. For further information about the Group, write to PO Box 330, Hurstville 2220.

WICEN

The 5th Schofields Air Show was held over the weekend 28th-29th March. WICEN provided a large radio and telephone network for ground communications. The exercise was most successful and a fuller report will be presented in a future AR.

Details of three clubs affiliated with the NSW Division.

NORTH WEST AMATEUR RADIO GROUP

Box 133, Inverell 2360.

Net: Mondays at 9 p.m. EST on 3575 kHz using VK2AZF.

President, T. Lumbewe VK2ZX; Vice-President, J. Belford VK2AZF; Secretary, G. Jopson VK2VPP; Other Committee, D. Bailey VK2NVN, W. Thomas VK2NXT, P. Beard VK2VBM.
Repeater: VHF VK2RMI, channel 6950, in Moree/Inverell area.

MOREE AND DISTRICT RADIO CLUB

Box 68, Moree 2400.

Net: Fridays at 4.30 p.m. on 3575 kHz using K2DGM.

Meetings: At East Moree Primary School. Classes: Wednesdays and Sundays at 8 p.m. at 150 Heber Street, Moree.

President, C. Boughton VK2VSH; Vice-President, H. Schouten; Secretary, C. Barton VK2VXH; Other Committee, R. Page VK2YOW/VTH, E. Shone, R. Ireland, H. McKenzie, P. Moat VK2BYX.

GRIFFITH RADIO CLUB

Box 4, Griffith 2680.

Nets: Wednesdays at 8 p.m. on 28.48 MHz using VK2DBK. Wednesdays at 9 p.m. on 3.61 MHz using VK2DEI (SWARS net).

Meetings: Third Mondays at the Scout Hall in Kooba Street, Griffith.

President, G. Watkins VK2DGW; Vice-President, J. Lacey VK2NQL/YEZ; Secretary, J. Chandler VK2DFC; Other Committee, L. Boneham VK2DLN, J. Hill VK2DIX, G. Watkins VK2VRW, R. Speed VK2YNC, B. Barber VK2VXY.

Repeater: VHF VK2RGF, channel 6850. Located at Mt. Bingar, approximately 20 km north of Griffith, with a range of about 65 km. Output 10W into ringo ranger antenna.

COMING EVENTS

19th May (Tuesday): ATV Group meeting.
24th May (Sunday), 10 a.m.: Fourth Con-

ference of Clubs at Goulburn RSL Club, Market Street, Goulburn.

31st May (Sunday), 2 p.m.: South West Amateur Radio Society AGM at Narandera Ex-Servicemen's Club. Directions on channel 6000.

7th June (Sunday), 8 a.m.: Club liaison net on 3575 kHz.

27th June (Saturday), 2 p.m.: Divisional Auction at 14 Atchison Street, Crows Nest.

Accompanying the VK2 Minibulletin this month is a photo which was published in a Forbes newspaper in 1952. There are some familiar faces and call signs in the photograph, accompanying which was the following article:

"RADIO AMATEURS IN FORBES — ZONE CONVENTION"

A convention of amateur wireless operators was held at Forbes during the weekend. Twenty-four members of the 'Ham' fraternity, the married ones bringing their wives, attended the first of such functions ever held in Forbes.

The President of the Wireless Institute of Australia, Mr. Corbin, was one of the Sydney contingent of four, while Coanamble, Wagga, Bathurst, Eugowra, Parks and Forbes (three delegates) were also represented.

At the business meeting in Flannery's Hotel lounge, Mr. J. Reed, one of the top men of Overseas Telecommunications, Sydney, delivered a lecture and showed films.

The well known Forbes hospitality was strongly in evidence with a barbecue lunch at Mr. Hugh Stitt's home, "Cumbijowa", and an evening at Mr. John Meagher's home in Wombat Street.

In previous years two Forbes delegates had attended North Coast conventions of amateur operators, but as the State is now zoned, it was felt that Forbes should grasp the opportunity to be host to its first Zone Convention."

Susan Brown VK2BSB.

QRK5

A monthly transmission from the Victorian Division WIA.

With March 24th over and away, may we pass on our most sincere congratulations to those who received a "Lucky Letter" from the DOC; and commiserations to those of you who obtained 68 per cent or less. Contrary to the outspoken opinions of a minority few, it would seem that the new examination format is making us even more of an exclusive or elitist group — that is if you judge by the percentage of candidates who are successful. From all accounts less candidates are obtaining passes, and observations suggest that the exam standard is progressively increasing.

Now that it's all over, this seems to be a good time to make a few quick com-



Among the group pictured you may recognise Rod VK2ACU, Ern VK2ASE, Alec VK2ABU, Bill VK2BT, Hugo VK2WH, John VK2AMV, John Moyle VK2JGU, Joe Reid VK2JR, Jim VK2YC, Alan VK2TA, Norm Moodie.

ments about the State Convention. As it was to be the first State Convention for many years we expected to make some mistakes, but to learn by them, and so it was no great surprise when things did not turn out as planned. The general consensus of opinion is that it went well considering the short time available to prepare/organise the entire show. Heartfelt thanks go to those companies and organisations who contributed to the event, and to that small band of enthusiasts who so unselfishly gave their time for the planning and running of the Convention. If any one person should be singled out, I'd nominate Alan Noble VK3BBM, who put untold hours and immeasurable effort into the convention — a real powerhouse of drive and enthusiasm. Good on you, Alan.

We view with some concern the gradual degeneration of behaviour on the Melbourne repeater channels. It's bad enough that we have to put up with some idiots whose great thrill in life is to make obscene and/or unsavoury comments — anonymously, of course. **YOU** will enhance that thrill if you acknowledge his existence, so just ignore the clown, no matter how much self-control it takes. But what has happened to the 10 second breaks between overs? One has only to note the number of "Time-outs" where respondents have grabbed the mike so quickly in order to reply that the repeater hasn't deactivated and let the time reset. The main offenders seem to be those who spend most of their "ON AIR" time on the HF bands where you have to be quick; and the newcomers to the bands who haven't been told of correct operating procedures. In most cases a friendly word of advice is sufficient — if you manage to break in!

Amazing as it may seem, there are over 2500 WIA members in Victoria. Of that number, about 20 to 30 seem to keep in touch with the Institute by attending meetings, or by direct contact with councillors, or both. That means, in turn, that the decisions made on your behalf by Council reflect the opinions of a very small minority. This situation was highlighted at the last General Meeting when there weren't even enough members attending to make a quorum, so the meeting was a non-event! It reminds me of that rather well known piece of graffiti — "APATHY — WHO CARES?" Quite seriously there are many of you who voice good opinions and ideas (and criticisms, too) on air and that's where they stay — in the air. Why not present these ideas to Vic. Div. and let your Council see whether they can be implemented. Put another way — put your money where your mouth is!

Further to my article last month on the thoughts of a special class of amateur licence, you would be amazed at some of the comments I've heard about that. It really dragged some of these sandbaggers out of the woodwork, and their screams of protest are still echoing around this QTH. It would appear that bit about rescinding all two letter calls is the bit that really

hurt, but there's not really a problem when you consider the matter carefully. To retain his two letter call an amateur would merely have to pass this new grade of licence examination. Now one often hears derisive comments on air about how easy it is to get a licence these days. "Send in half-a-dozen Wheaty box-tops" or words to that effect. I'm sure the thought of a higher-level exam in multi-choice format (multi-guess?) would pose no problem to these folk. Or is it a case of "Methinks he doth protest too much"?

Those of you who have subscribed to this magazine for some time may remember an article entitled "Wee Willies Wonder" or similar. Without looking at the particular item, I suspect it described an ATU which Mike had developed. Going by some blurry babbling at Wee Willies Well-Wetted Watering Hole, a new wonder may yet emanate from that landed country gentleman. It was either 5 elements on 80 metres on the back of his Vespa, or a tranny radio in his shirt pocket for keeping up with the stock exchange. Time, and Mike, will tell!

That's all for this month — send in that gossip.

73. Pete Drury. ■



The Monthly Bulletin from the Tasmanian Division WIA

North West Notes submitted by Jim Davis VK7NOW (VK2KOW)

Meeting held Penguin High School with an attendance of 40, including guests.

The Australian National Band Contest (music of course) is being held during Easter week. A number of VK7s from North West Branch will be in attendance providing a comprehensive communications system.

Details of a mini Ham Fest at Port Sorell were discussed and to be advised.

A new member was welcomed — Arthur Travaskis.

VK2BWI and VK5AWI take note! A VK7 CW net is to be set up on the north-west coast. (No more QRN and ORM locally.) Operators will be Charles VK7CF, ex ship's operator, Geoff VK7WZ, ex RAAF radio op., and Don VK7DP, with years of amateur experience. Good luck, gentlemen. A long needed service for VK7 frequency will be 3540. Times and days of operation to be advised.

VHF enthusiasts should also note that repeater 3 147-750/147.150 has been increased in power. Thanks, Martin VK7MM.

During the evening a VK5 visitor was welcomed — John Ingham VK5KG (Are You Being Served fame). No, an ATV expert, possibly number one in this field. An interesting discussion was had by all with John. A video tape was screened during

the evening, displaying the VK5RTV complex.

DXers take note. Jimmy Davis VK7NOW (VK7KOW) leaves on the 10th April per Qantas, 15 days in all, on a special kind of DXpedition to ZL. For more information watch next month's issue. Old-timers and Tasmanians will be thrilled with his discovery; could be sparking things along. Good luck, Jim.

NORTHERN NOTES

Friday 13th saw 19 members attend the annual general meeting. Elections were held and VK7AE was elected as President.

A working bee was organized by VK7NAB to assist in the erection of antennas at Eskleigh Hospital for a well known amateur, VK7WK, ex VK4NPJ, VK4APJ, VK3BWK, QRA, Kelvin Williams. To amateurs concerned he is in top shape and listening to all bands. Visitors welcome.

Repeater 8, Mt. Barrow. Gentlemen be patient as there are several problems regarding the antennas, power is down and area coverage is down. Several VK7s are blaming their faithful: old rigs.

A new member, Homer Fairley, was welcomed.

Next meeting Friday, 10th April, at Bourke Street Club Rooms.

Recent visitors to Tasmania were VK1BM (JA1RHL) Daisuke Ara and VK1NBO Gus. Ara was heard on all repeaters and was the host of numerous VK7s. Highlights of his visit were a trip to Flinders Island and to Eskleigh Hospital, Perth, the QTH of VK7WK, ex VK3BWK Kel. Several photos and notes were taken and submitted to CQ magazine in Japan by Ara.

To all VK3s John Beckett, ex VK3FE, now VK7FI, Flinders Island, is now active on all bands, including 6 and 2m. All visitors are welcome at his "Blue Rocks" QTH. Possibly one of the best locations for amateur radio in Australia, QRN is non-existent. VK7FI's location on Flinders Island now adds another island to the "Worked all Islands Award". Good luck, John; with the high cost of diesel fuel we will understand if the rig is not switched on.

VK7FI, PO Box Whitemark, Flinders Island. (QTH "Blue Rocks".)

Amateurs wanting to increase their points for the Tasmanian Devil Award should now listen: Sundays 0100Z 28,560 ± QRM and 28,580 ± QRM; 0500Z 21,380 ± QRM; 1030Z 14,325 ± QRM. Tuesday 1000Z 3,580 ± QRM.

VK7 State Annual General Meeting held Saturday, 21st March, at Bourke Street Club Rooms. New State Council elected — President, Ivan VK7XL; Secretary, Ken VK7ZKJ; Treasurer, Shane VK7ZSC; Liaison Officer, Tony VK7ZTH; Federal Councillor, Peter VK7BG; Alternate Federal Councillor, Mike VK7MC.

Next Division Council Meeting 25th April (Anzac Day) at Northern Branch Club Rooms.

Allen Burke VK7NAB/ZAN. ■



INTRUDER WATCH SPECIAL

Help Keep Intruders From our Bands

THE WIRELESS INSTITUTE OF AUSTRALIA

EXECUTIVE



FOUNDED 1910

P.O. BOX 150, TOORAK, VIC., 3142

April, 1981.

Dear Member,

This issue contains an Intruder Watch Special highlighting the importance of Intruder Watch.

In the H.F. spectrum, the amateur service is allocated a number of bands exclusively, yet non-amateur transmissions are obvious.

The 'rules of the game' are that any service may transmit anywhere so long as it does not interfere with internationally recognized users of that band or frequency. The exclusive amateur bands can be used by anyone anywhere, provided they do not interfere with amateurs. If amateurs do not complain of interference, then they have only themselves to blame if non-amateur stations disrupt our bands. This is what Intruder Watch is all about.

As you will see from the IARU's letter it is only the Administrations that can complain in any effective way of transmitters not adhering to their internationally recognized frequency bands. Intruder Watch is the channel to our Administration for interference complaints - It is Intruder Watch that can provide the pressure which will lead Australia to act.

A particularly insidious example of interference that disrupts internationally agreed frequency bands is the so-called "Woodpecker" - an over the horizon radar system and which is highlighted in the correspondence reproduced in this Intruder Watch Special. It dramatizes the problem of interference. The W.I.A. welcomes any action that creates an awareness of individual amateurs responsibility to protect his own bands. That is what Intruder Watch is for and that is what Intruder Watch is all about.

Intruder Watch needs your support.

73

Peter Wolfenden VK3KSE
P. WOLFENDEN
FEDERAL PRESIDENT.

INTRUDER WATCH CO-ORDINATORS

Federal: GRAEME FULLER VK3NXX

VK1:

VK2:

VK3:

VK4: VK4KAL

VK5: VK5LG

VK6: VK6WT

VK7:

VK8: VK8HA

W.C.-700

POSITIVE STEPS TAKEN THROUGH

RECENT INTRUDER

- Radio of the Koran QSYed
- AXM 32/34/37 spurious rem
- Radio Cairo on 7050 kHz will

THE INTERNATIONAL AMATEUR RADIO UNION



January 27, 1981

A Newsletter for all IARU Societies

(Please make this information available to all members of your executive, as it contains information which we believe to be important to the future of amateur radio.)

A prominent western administration wishes once again to address the problem of the so-called Russian Woodpecker, which is reported to be an over-the-horizon radar system and which causes extreme interference to a number of important radio services, including the amateur radio service.

It is important that members of the several Intruder Watches, and other amateurs as well, file as many reports as possible of interference to the amateur radio service from the Russian Woodpecker. These reports of interference should, as usual, be filed with the appropriate telecommunication officials in your administration. In addition, informational summaries of the complaints filed should be sent to IARU HQ, either direct or via the regional Intruder Watch Coordinators, whose addresses are noted below.

By copy of this letter, the Regional Intruder Watch Coordinators are urged to encourage support of this project. Again, the proper avenue of complaint about this interference is through the telecommunications administration of the amateur radio station which is being interfered with. In the world of the ITU, it's administrations which wield the power. Thus, effective action in a problem such as this can result only when an administration, or a number of administrations, can be vocal enough in their concern. Complaints sent by radio amateurs directly to an offending station or to the administration of a foreign station causing interference, or to the staff of the International Telecommunication Union, will have negligible effect.

Sincerely yours,

Richard L. Baldwin

Richard L. Baldwin, W1RU
Secretary, IARU

RLB:dif
Regional Intruder Watch Coordinators:

Region 1
C.J. Thomas, G3PSM
36 Chelwood Cres.
Leeds LS8 2AQ
England

Region 2
M.L. Gibson, W7IE
1215 N. 28th Place
Renton, WA 98055 USA

Region 3
All Chandler, VK3LC
15 Point Ave.
Beaumaris, Victoria
Australia 3193

THE DEPARTMENT OF THE PRIME MINISTER AND CABINET

CANBERRA. A.C.T. 2600

Dear Mr Chandler,

I am writing to acknowledge receipt of your letter of 5 February 1981 to the Prime Minister concerning radio interference.

I have been asked to let you know that the matter you raised has been brought to the attention of the Minister for Communications.

Yours sincerely,

W. Ammon
(W. Ammon)
Senior Adviser
Operations Branch



Mr A.W. Chandler
IARU, Region 3
Intruder Watch Co-ordinator
15 Point Avenue
BEAUMARIS VIC 3193

Dear Mr Chandler

You wrote to the Prime Minister, concerning interference being experienced due to Over the Horizon Radar. You also views with concern any unauthorised bands.

It is correct that the interference from Over the Horizon Radar transmissions employed by a number of countries as requirements. In such sensitive circumstances to positively identify the source of prove possible, you will appreciate any action initiated by the Australian changes in the attitude of the country.

Accordingly, it is believed that number of bands with other services frequencies to choose from at any given avoiding the usually transient interference transmissions by amateur operators to frequency at the time such interference

DOUGH YOUR INTRUDER WATCH

WATCH SUCCESSES:

from 21435 kHz.

AR, April '81, p.47

moved from 14120 kHz.

AR, Sept. '80, p.37

QSY about May/June 1981.

MINISTER FOR COMMUNICATIONS

Deputy Leader of the National Country Party of Australia
Leader of the House Member for New England

20 APR 1981

the Rt Hon J.M. Fraser CH MP,
need to the Amateur and other bands
you be assured that my Department
intrusion into the Australian amateur

nce problem you describe results
ions. Such systems are, however,
an important part of their defence
stances, it would be very difficult
the offending signals. If this did
hat it is extremely unlikely that
y Government would produce significant
y concerned.

as the amateur service shares a
nd has a sizeable allocation of
on time, there should be scope for
erence affects from such Radar
sporadically shifting to another
ce is present.

Yours sincerely

(Ian Sinclair)

Hon Ian Sinclair.
Minister for Communications.
Canberra, ACT, 2600.
Dear Sir,

75 Point Ave. Beaumaris. 3193.
31.3.81

Further to my letter of recent date to the Prime Minister, and in reply to yours of 20th March, with respect, I do really think that you have missed the point.

The over the horizon radar signals referred to have definitely been identified as from USSR. Most European countries and also the USA and Great Britain have already sent complaints to the USSR. The signals are very persistent and impossible to ignore when operating on the Amateur bands. They blot out a large segment of the band at any given minute.

I have been participating in a particular net operation on 14332 kilohertz this evening which was made almost impossible by that persistent signal over-tiding our comparatively low power signals. There were over 90 stations on this net which operates primarily to take care of emergencies, and a possible may-day call could easily be missed because of it. It was impossible to get away from the signal as it covers so much of the band.

On Wednesday before receiving your letter I took more than a dozen separate Amateur's comprehensive observations to the Department of Communications here, but they will not initiate a complaint unless authorised by your goodself. The more Administrations that will officially complain, the more chance have we of the USSR doing something about their insidious signal.

As for it being a defensive measure I would equivocally call it an offensive measure, and I would go further and say it being such an extensive type propagation using anything up to 20 megawatts of power it is tracking any military and civilian aircraft throughout the world as well as the deployment of any naval vessels. It is a spying operation which could affect our defence.

I do hope that you will be able to see your way clear to authorise a complaint, and I would like to know what Mr Fraser thinks of the situation.

Thanking you,

Yours Sincerely

(Aif.W.Chandler, VK3LC)

P.S - Enclosed is a copy of letter from IARU headquarters that sparked this off.

After discussion with the IARU Co-ordinator for Region 3, consideration is being given to supply each Co-ordinator, and possibly others, with a regular News Sheet containing listings of intruders and any other relevant information relating to our activities. The News Sheet will probably be on a trial basis for twelve months to enable its value to be determined.

For your information regular monthly reports compiled from information passed onto me by individual amateurs and the few known active Watchers have been forwarded to both the Department of Communications and Region 3 IARU Intruder Watch Co-ordinator.

Please give this matter your earliest attention.

Yours sincerely,

G. FULLER

FEDERAL INTRUDER WATCH CO-ORDINATOR

INTRUDER WATCH COLUMN

The following is an extract from an article by VK3LC printed in "Region 3 News".

In summarising Intruder Watch reports we find that Finland is number one in volume of reports, followed by the USA (about 5 times as many as the next), then Switzerland, Britain, New Zealand, West Germany, Barbados and Australia . . . followed by 5 other countries.

I as Federal Intruder Watch Co-ordinator am very pleased to see that Australia even rated a mentioned, as the response to Intruder Watch in this country is on a very low level.

By far the greatest number of reports in VK are coming from VK4, followed by VK6, VK3 and VK5. The rest of the Divisions leave a lot to be desired.

After appeals on State broadcasts for reports on the woodpecker, the response has been rather poor. The Intruder Watch Service would certainly like to receive a lot more reports. Reports are required on Radio Peking, which operates on the 7000-7100 MHz band, the strongest signal you are likely to encounter is on 7010 MHz with a very strong harmonic on 14020 MHz.

Please remember, for the WIA Intruder Watch Service to help you as amateurs you must be prepared to help yourselves.

A late QSP from VK3LC: "Owing to representation from the IARU Intruder Watch, Region 1, Great Britain, the Egyptian broadcast Radio Caori, operating on 7050 MHz (this signal is very strong early morning in VK), will be vacating the 7 MHz band in May or June of this year."

Finally I would like to appeal to any amateurs who have a sound knowledge of a particular language or languages (very little time involved), as I am working on a new approach to the Intruder Watch Service. Please write direct QTHR.

73. Graeme Fuller VK3NXI, Federal IW Co-ordinator.

HELP WITH INTRUDER WATCHING

IF YOU WOULD LIKE TO
BECOME AN
INTRUDER WATCHER

WRITE TO:
GRAEME FULLER VK3NXI
THE FEDERAL
INTRUDER WATCH
CO-ORDINATOR

Some Over-The-Horizon Radar Information

★ RUSSIAN WOODPECKER

AR April 1980, p.43

★ OTHR

QST April 1980, p.39

ETI Feb. 1978, p.35

PENSIONERS

If you believe you are entitled to a WIA pensioner grading —

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VK3BWW

WERNER & G. WULF

92 LEONARD AVENUE
ST. ALBANS, VICTORIA 3021

SPOTLIGHT ON SWLing

Robin Hawood VK7RH

5 Helen St., Launceston, Tasmania 7250



If you find that the VK2BW/VK5WI Code Practice sessions on 3550 kHz difficult to copy due to QRM or QRN, or perhaps it is an unsatisfactory time period, you should consider copying the Maritime Communications Shore Stations. These serve the large naval and merchant marine fleets that ply the world's sea lanes. Most stations carry weather bulletins, navigational warnings and some even send practice drills for trainee W/T officers.

Their primary purpose is to pass commercial traffic between ship and shore. As they operate on several frequency bands simultaneously, to take account of changing propagation conditions, it is comparatively easy to hear a station with traffic at any time of day. An added bonus to this being the listener gets acquainted with the different styles of sending or "fists".

The shore station operates on a fixed frequency, listening on a designated calling channel for ships with traffic. Once a ship makes contact with the station, he nominates a working frequency so as to leave the calling channel free for other vessels to use, in effect split-frequency operation. You will also hear the use of abbreviations, as well as the "Q" and "Z" codes.

At regular intervals, the shore station will transmit a list of traffic on hand for ships. It gives the ship's call sign (often twice) and may add QRU after the call, indicating that they are holding radio-telephone traffic for that particular vessel. These traffic lists make good practice as they usually are four letter groups. The weather and other related information provides good plain language copy.

However, after getting used to listening to CW, you can easily slip into the trap of anticipating the next letter or word, and errors creep in as a letter is sent that you were not expecting. This is what we call "journalising". To overcome this, try copying faster fists, or concentrate on cypher groups. Another lurk could be copying FUJ in Noumea, heard very well in eastern Australia, as they transmit their information in French. That should eradicate your "journalising"!

If you are copying one of the many Japanese shore stations, be warned. They transmit copy almost exclusively in a completely different code. This is because the Japanese alphabet consists of 63 characters, compared to 26 in the Western, although the numerals remain the same. Soviet stations also send copy in a different code that relates to the Cyrillic alphabet. So unless you know the two different alphabets, skip listening to these otherwise you will get hopelessly confused!

The shore stations continuously transmit a Marker Signal or I/D when they are not engaged with commercial traffic. This is in order that the W/T operators aboard ship know if they will have propagation on that particular band. If that band is unsuitable, he listens for the station's signal on a higher or lower band.

Here is a typical example of what the procedure is:—

"VIS 26 VIS 26 DE JNSA JNSA QTC? K."

"JNSA JNSA DE VIS 26 QTC 2 QSS? K."

A Japanese ship on the 8 MHz calling frequency asks if VIS (Sydney Radio) has any traffic on hand for him. Sydney confirms that he has two messages on hand. QSS? means what is your working frequency.

"VIS 26 DE JNSA QSS 389 389 K?"

"JNSA DE VIS 26 389 UP."

Here JNSA nominates (8)389 as his working channel. VIS acknowledges and JNSA goes to that channel.

When contact is made, VIS sends the traffic still on its fixed frequency.

"JNSA DE VIS 26 NIL QRU? K."

"DE JNSA QRU SEE U TU VA."

"VIS 26 TU SEE U VA QRZ? K."

Sydney asks if he has any further traffic, as he has cleared his. JNSA confirms that he has nothing further and signs off. Meanwhile two further vessels are calling VIS 26 on the calling channel.

"VIS 26 DE FDRW FDRW QRK? QSS 402 OK?"

"FDRW DE VIS 26 QRK 1 QRM QSY 12 MHz K."

"VIS 26 DE FDRW R . . . R QSW 12 MHz TU VA."

This French ship apparently is not certain that his signal is being heard, so the shore op. suggests shifting to the 12 MHz band where another operator will handle the message, relieving the 8 MHz operator to take the other ship's traffic.

The approximate Maritime Communication Bands are:

Ships working	Shore Stations
4100 to 4150	4150 to 4390
6200 to 6300	6300 to 6500
8300 to 8450	8450 to 8720
12650 to 12700	12700 to 13100
16700 to 16870	16870 to 17200
22200 to 22300	22300 to 22600

There is also provision for a supplementary HF band from 25 to 25.5 MHz, but very few stations, mainly Scandinavians,

utilize it. For semi-local operations, stations also use the 600 metre band, i.e. 410 to 520 kilohertz, with 500 kilohertz being the standard calling and emergency channel for both ship and shore. It is also mandatory for all maritime vessels to monitor this frequency continuously while at sea.

By keeping an ear on the various maritime stations, it can also be a guide to propagation. If you hear, for example, 4XO in Haifa, Israel, on 17146.4kHz around 0430, you will certainly find that Middle Eastern stations coming on the Long Path. Similarly the various South African shore stations on 17 MHz at around 0500 are a good pointer to propagation to Africa on the Short Path.

When PPR in Rio De Janeiro is heard on either 22430 or 22352.5 kHz at a reasonable level, it usually is a good indication that exceptional propagational conditions exist on the higher frequencies.

It is also worth noting when propagation is coming in from regions at other than expected or normal periods, I have observed that this could indicate that there will be an ionospheric disturbance in the offing which will affect band conditions for up to 36 hours. Propagation often is very good after these auroral disturbances subside.

Well, that is all for this month. Hope you have a lot of fun listening and copying these stations. Until next time, the very best of DXing and 73s.—Robin L. Harwood.

LIST OF MAJOR SHORE STATIONS Call Frequency

VIX/VHP — 4265, 6428.4, 12907.5, 16918.6, RAN Belconnen.
VIS — 4245, 4272.5, 8464, 8521, 12952, 17161.3, OTC, Sydney.
VIP — 8597, 12994, 6407, OTC, Perth (WA).
KFS — 6350, 6365.5, 8444, 8558.4, 12840, 17025.5, San Francisco.
KPH — 8620, 8640, 13002, 17016.5, RCA, Bolinas, California.
FUJ — 8644, 12658, 16957.7, 22461, Noumea, New Caledonia.
GKC — 13019.8, 8490, Portishead, UK.
WCC — 13033, RCA, Catham, Mass. (nr. Cap Cod). ■

QSP

"There is a penalty of 20 pounds for operating an unlicensed receiving station." "It should be borne in mind that your broadcast receiving licence does not allow you to move your set from place to place at will. Before operating the portable set, permission must be obtained from the authorities to transfer it temporarily." The number of amateur transmitting stations in 1924 were about 130 each in NSW and Victoria, 30 in Qld., 28 in SA, 19 in WA, and 14 in Tasmania. Extracts from "Evening News" Wireless Handbook of 1924. ■

USA 6m BAND
IARU RS9 News February 1981 reports that from 14/7/1980 the 50-54 MHz band in the USA has been de-regulated by the FCC, although 50-50.1 MHz remains CW only and repeaters are restricted to above 52 MHz. The ARRL is working with various 6m special interest groups to produce a voluntary band plan which is complicated by other countries' amateurs being restricted to a smaller band than in the USA. "DX windows" at 50-51.1 MHz and 52-52.1 MHz are suggested and above 50.5 MHz for FM and repeaters. ■

AMATEUR SATELLITES



R. C. Arnold VK3ZBB

Amateur satellite activity is on the increase in at least two States—VK4 and VK5—and efforts are being made to recruit more operators to the ranks. Activity from VK4 is mostly on Mode A, a facility available to most amateurs and in the morning passes—must be a 25 hour week in Johland hi. (How to make friends up north!)

Arthur VK4AW reports that VK4AJA, AGL, PU, WS, WQ, KGE are participants in the OSCAR traffic and we continue to have the Mode B regulars 4TL and AJI (formerly P29FB and VK4ZJK) with us most nights.

VK2ZPG is active on Mode A and Peter H44PT in Solomon Islands performs well on Modes A and B. For the operators in the North there should be activity in the near future from Hawaii via WH6AMX (A, B and J) and AH6AP. Bob VK5ZRO reports working into JA on several occasions recently via Mode B at the end of passes with Ascending Nodes around 190-200—good work, Bob. In VK3 are looking for them also but the few kilometres extra distance makes it more difficult.

In response to the appeal, funds to support the AMSAT Phase 3 programme continue to pour in to AMSAT Headquarters. Harry JA1ANG tells me that 664 life members of AMSAT responded to a personal appeal from President Tom Clark W3IWI and contributed over \$30,000 to Phase 3. Harry personally presented a cheque for \$5,500 from Japanese amateurs. Whilst I have no figures from Australia I am sure the keen satellite operators are making their contribution to the world-wide effort. For a donation of \$5 or more you can support the Phase 3 programme and receive a distinctive call sign badge. The badge is 75 x 45 mm and displays the AMSAT logo in red, the AMSAT name in blue, and your name and call sign are engraved to show blue with a white background. Send your donation to AMSAT HQ, PO Box 27, Washington, DC 20044, USA. Specify your first name and call sign. Enclose \$1 for post and packing and an extra \$1 if you require airmail.

Many thanks to Dick VK3ARR for bulk handling applications in VK3 and for arranging an appeal via the Divisional

broadcast and ATV segment (thanks to Ron VK3AHJ, my indefatigable ATP neighbour). Can other Divisions help likewise?

Would you like to join AMSAT? If so, let me know and I will send you an application form. The subscription is \$20 per annum or \$200 for life membership.

For those who wish to have advanced and detailed orbital predictions, the Project OSCAR orbital calendar is now available each three months. Send a SAE with at least \$1.20 postage for each issue to Project OSCAR, PO Box 1136, Los Altos, CA 94022, USA.

There is still some uncertainty on the launch date of Phase IIIB following the decision to cancel the Firewheel Project due to budget problems. However, there is a strong possibility that Phase IIIB will be on board "ARIANE" rocket No. L7 due for launch during 1982—firm news should be available in the near future.

AMSAT-Germany, builders of Phase IIIB, have requested opinions on the frequencies they propose to use. The following bands have been suggested and as they fall within the WARC 79 allocation for satellite operation, they would seem to be acceptable (and a challenge).

1. U-Transponder:
Uplink: 435,300-435,150 MHz.
Downlink: 145,820-145,970 MHz. Engineering Beacon: 145,990 MHz.
General Beacon: 145,8125 MHz.
2. L-Transponder:
Uplink: 1269,950-1269,150 MHz.
Downlink: 436,150-436,950 MHz. Engineering Beacon: 436,020 MHz.
General Beacon: 436,040 MHz.

Both AMSAT OSCARS 7 and 8 continue to operate effectively with AO7 Mode B being the most popular. We still have problems with mode switching on AO7 but the general opinion is that this makes satellite operating the more interesting.

The spin rate of AO8 is slowing down. Normally, the rate is 1 rev. per 5 mins., but this has now become 1 rev. per 17 to 22 mins. Why? Can you help by monitoring Channel 1 of the telemetry information and forwarding your report to Bernie Glassmeyer W9KDR/1 at ARRL HQ? AO8 is getting hotter due to the low spin rate and the orbital drift and from time to time modes are switched to increase battery drain and hence keep the battery cool.

ACKNOWLEDGEMENTS

To Charlie VK3ACR for writing last month's notes while I was otherwise occupied, thanks to Qantas.

For this edition: Bob VK5ZRO, Peter VK4PJ, Orbit Magazine and AMSAT.

PREDICTED EQUATOR CROSSINGS FOR MAY 1981

OSCAR 7					OSCAR 8				
Date	Orb. No.	Eqs. Z	Eqs. °W	Lat.	Date	Orb. No.	Eqs. Z	Eqs. °W	Lat.
3	28570	0043	89	18104	0022	67			
10	29558	0118	98	16202	0055	74			
17	29746	0153	107	16300	0128	83			
24	29833	0033	87	16397	0018	65			
31	29921	0108	96	16495	0051	74			

Av. Orbit Period (mins.):
OSCAR 7: 114.9147
OSCAR 8: 103.1948
Av. Longitudinal Increment (deg.):
OSCAR 7: 28.7373
OSCAR 8: 25.8002

Taken from Orbit Magazine (free to AMSAT members) is an authentic article on the Causes of Launch Failure of Ariane L02 which carried Phase IIIA satellite. ■

THE CAUSES OF LAUNCH FAILURE AT KOUROU

Alexander Schoening DC7AS
Ludolfingenweg, 52, 1 Berlin 28, West Germany

Many reports about the failure of the ARIANE L02 launch have been published by the ESA (European Space Agency) since the 23rd of May, 1980.

Even shortly after the failure of the launch a record was made public about the events that happened in the span of time between the ignition of the engines and the destruction of the vehicle 108 seconds later. This record has been published (1) and was later supplemented in ESA publications in more detail and by the events observed (3).

The D engine which plunged into the sea with the rest of the rocket from an altitude of about 25 kms, was found about 5 kms to the south of the *Iles du Salut* on the 16th of June, 1980, and retrieved from the sea. The remains of this engine were taken to Messrs. SEP in Vernon (France).

ESA gave an account of the first preliminary results of the examination of the engine D in a press release (2) in June, 1980. Therein it is stated that many assumptions regarding the cause of the failure of the launch could be rejected and that only three hypotheses should be taken into consideration.

1. A first examination revealed in particular the presence of an identification label in the engine in the vicinity of the N₂O₄ injection orifices. ESA declared later (3) that it was clearly proved that the plastic tag in question had never come into contact with nitrogen tetroxide. Obviously it was flushed there only after the destruction of the engine. Furthermore, an engine test reproducing this circumstance was carried out with satisfactory results. The tag was probably torn off and then sucked into the injector on splash-down.
2. Detailed analysis of the noise produced by the engines seems to show some difference compared with the results recorded during various ground tests in Europe. ESA rejects any hypothesis which may have appeared in the press that the stages of technical design of the exhaust-jet deflector located beneath the launcher may have been influenced by economic considerations. On the contrary, the design was a result of thorough studies and tests on an engine-fitted mock-up carried out in Europe.

3. Certain characteristics parameters of the D engine start-up, such as the combustion-pressure built-up, show tolerances slightly greater than normal.

During the summer 1980, six working groups were busy trying to confirm or to eliminate the abovementioned hypotheses. They presented a detailed report (1) following additional studies, the contents of which is summarised in the ESA/CNES press release No. 24 dated October 16, 1980. The following extracts are from this release:

1. "The failure of the ARIANE L02 launch on the 23rd of Mal, 1980, was due to combustion instability of a high frequency (above 2000 Hz) that occurred on one of the four first-stage engines 5.75 seconds after ignition."
2. "This extreme violent phenomena, lasting only 3/10ths of a second, abruptly altered the characteristics of the injector whose degradation led to the destruction of the engine 64 seconds after ignition. The fire that broke out after this in the propulsion bay caused the vehicle to be destroyed 108 seconds after lift-off."

The examination results (especially recent experiences concerning manufacturing tolerances of the injection nozzles) are to be considered on the occasion of the next test launch (L03 with METEOSAT) in the second part of March 1981. The last test launch (L04) is scheduled for June 1981.

REFERENCES

- (1) Werner Budeler, "ARIANE L02 — Explosion und Absturz nach 108 Sekunden", issue 2/1980, Luft und Raumfahrt, pages 56-57.
- (2) "ESA/CNES Press Release" No. 17, dated June 24, 1980.
- (3) "Third Report on the L02 launch", ESA, Paris, October 15, 1980.



"You can't get ATV anymore Dear — the Authorities removed Foot Note 59".

From SEQATV Group

A REMINDER

A WIA MEMBERSHIP CERTIFICATE IS OBTAINABLE ONLY FROM YOUR DIVISION.

IC-22S on Marine Frequencies

Following the construction of an outrigger for selection in 25 kHz steps, between 146 and 148 MHz, problems with my transmission became obvious.

Something amiss was first noticed by Bob VK5ZHR, who commented on my noisy, unstable carrier, and later that same night Colin VK5HI broke in to politely inform me that I had been guilty of tripping his Albany Repeater Monitor Recorder (VK6RTW 144.5 MHz) and also confirmed Bob's previous observations.

Then came the ultimate embarrassment. The phone call from P. and T. Department informing me that VK5ZDD had been heard on a Marine Frequency at Outer Harbour (156 MHz).

Following the checking of my outrigger and power supply the problem was isolated to the 22S at the top end of the band only.

With Bob's help, the first place we checked was the logic of the duplex control circuit. Here the circuit diagram supplied was no use at all. Firstly the circuit diagram supplied could not work anyway and IC7 in the 22S was entirely different to IC7 in the circuit diagram.

I have included a circuit diagram of the duplex control circuit obtained from tracing out the printed circuit board. Basically, at Simplex and Duplex "A" operation the frequency programmed from the diode matrix is the same as the output which is fed to the divided IC, but on Duplex "B" transmit, the logic code output is 600 kHz higher.

With this task and with use of a logic probe a faulty IC (IC7) was located and replaced, but the fault did not end here.

With low power setting, and by observing the RF meter on the 22S, it was noted that at frequencies of 146.75 MHz and greater, a reduced power output was occurring and this was displayed by squegging on a CRO. Bob's immediate comment was alignment problems.

Following a visit to Steve's VK5ZNJ QTH, to make use of a newly acquired frequency counter, the problem was overcome where we started adjusting the trimmers around the output stage of the pre-driver. C100 (circuit diagram ident, but unmarked on the board), made all the difference. The reduced power output resulted from a low supply voltage on collector of pre-driver Q19, caused by excessive collector current from an incorrectly tuned driver stage.

Bob then checked his 22S and found that he could be heard at least 200 kHz either side at 147.6 MHz. By peaking all trimmers in final stage of approximately 156.9 MHz resulted in reducing bandwidth within spec. A similar adjustment on my 22S was also needed.

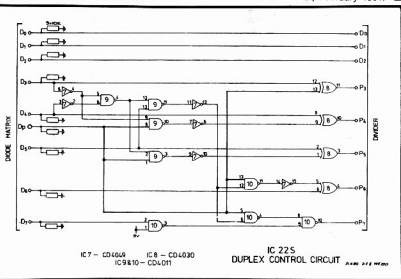
It appeared that both our 22S had been aligned at the bottom of the band (probably since this is where pre-programmed channels are) instead of the centre of the whole band. With all this done and an on-air check with P. and T. Department, I was again smiling.

All these problems highlighted the following points:—

1. Do not assume that all commercial equipment is correctly aligned.
2. On-air criticism given in the right attitude can be very valuable.
3. P. and T. authorities are not the nasty men often portrayed, their attitude and co-operation was most appreciated.

Many thanks for the advice and support freely given by Bob and Steve, and I trust that publication of this experience may help other ICOM 22S owners.

From SA WI Journal, February 1981.



YOU and DX

G. (Nick) Nichols VK6XI
6 Briar Place, Fernside, WA 6155.

This is the tenth column I've scratched together. When I took on the job I promised both myself and more particularly the XYL that I'd give it a serious "bash" for 12 months. Why? For several reasons, mostly though because no one else had offered but also because I felt I was (with sufficient time spent on air coupled with assistance by way of brief notes, on air contacts, etc.) capable of doing a reasonable job. So the lawns, painting, paving, fencing, etc., were neglected and still are come to that. I've expressed ideas, gripes, ridiculous on air practices, etc., however the twelve months are now rapidly drawing to a close and I fully intend the forthcoming July column to be my last.

Will someone else be prepared to have a shot? I hope so, I also hope the offer to take over is from well east of here. You've had two years of the DX scene through a VK6's eyes, Mike 6HD with his lean toward the lower bands without doubt made many of us realise the "rag-chew" bands were capable of much by way of DX; similarly my leaning (or should I say fanaticism) for 10 metres has I hope at least generated a bit more interest in the band.

It's really quite simple; Australia is one awfully big country, propagation even between Perth and the north-west of the State is totally different, for Perth DXers the South American continent, particularly on 10, poses real problems; we seldom get a good opening and when we do we join the queue behind what at times seems to be a thousand or more VK3s, 2s, etc., most of whom seem to be working the guy for the umpteenth time — please don't take offence — (though a bit of help would be nice). I believe we over here do much the same when working across the "pond" into the African continent — the point I'm trying to make is that what's DX to a Sydneysider could well be in our eyes QRM.

So there you are, if you'd like to give it a try put pen to paper now as printing deadlines cut down the time left considerably — how about it? Any offers?

FACT AND FICTION

Rumour has it that Dave K6LPL has set his sights on Kermadec for his next trip (following a successful Juan Fernandez operation); has been unable to catch up with Dave to confirm but here's hoping.

OY-land has been the subject of intense pirate activity — save your time, trouble and IRCs and ignore the following "stations", all prefixed of course with OY: 0A, 1K1RQ, 2BEH, 2MA, 5BFA, 5CP, 5JA, 5OQ, 8BK and 9AGM.

For those still needing OY (including me) listen for him around 28.450 on weekends around 07-0800Z working into Japan or if propagation permits 1300Z most

Thursdays on 28.770 — wish you luck! He's never very strong.

Still no news on 4W and the many rumours of 70 have all checked out to be false — don't give up hope but we could be waiting for a while yet. I've been supplied with a list of past and present VK0 and VK9 QSL information — if you're still chasing a QSL route drop me a line and I'll be pleased to assist where possible. Thanks to Neil VK6NE for compiling the data.

For those of you who one time or another check into the ANZA net (21.203 check in just prior to 0500Z daily), Percy VK3PA would undoubtedly be familiar. Ken 3AH has been good enough to send a photo of the co-ordinator and originator of the net, which I hope will be printed in this column soon. Thanks, Ken, for snapping the rather reluctant gentleman, and thanks Percy from the DXers around Australia for your time and dedication.



ON THE BANDS

10 Metres

Who said the cycle is dropping off for us here on VK6 and, from what I can gather, the rest of VK? This band has been the centre of DX activity with several 24 hour openings. Crazy crooked, long and short propagation has had many wearing rotors out in rapid time.

On phone the following stations all generated plenty of interest: 3D6AO, OH3XT/OH0, EL2AK, EL2AV, YS3CG, VP2ED, JA1JWP/JD1, TL8WH, J28JL, 8Q7AZ, ST2FF, C21BS, TL8CN, 5Z2YV, 5Z4NQ, KG6SL/KH0, KB5RY/KK6, H18LC, 3B8DB, 6Y5AA, 3B8AE/3B9, CE3GN, VP1MK, J88AQ, A22ED, A22BX, C5ABS, FO8GW, ZF2UE, F9UW/3A, J73PP, 5N0DOG. Sorry I've indulged myself, but there hasn't been a better month in a long while hi.

On CW (not that I went down there very often) H44BP and VU2WP plus a never ending supply of Europeans were easily workable.

15 Metres

Somewhat lost in the shadow of its higher neighbour on phone within the novice segment, YJ8NPS, CE3YF, EA6CF, J73PP, EL2AV, EA8YG, FO8DF and F9UW/3A were available and were worked by many.

On CW things were quite active with COT7M, DU6RE, H21AB, H44M and 3D2VU.

20 Metres

Sorry I neglected this band completely apart from one contact on phone with TL8CN. On CW though a whole feast of DX was available with 3D2VU, 3D2NB, 5Z4YV, T12MWH, PJ2HR, OE2VEL/KH8, J28CM, FM0FL, FH8CO, FG0FOK, FC2CC, EA9EU, EA6HH and W4PRO/CE0.

40 Metres

A CW report again — for the patient (and tone deaf, those commercial stations drive me mad before I even get started) EA6FZ, EA8PS, UG6SW and 5Z4YV (he sure gets around), plus Europe and USA were all workable.

80 Metres

Boy, do I get disheartened; climb out of bed at ridiculous hours, not a whisper of a signal day after day here in the west, but workable CW from the Eastern Seaboard, DL8AN, H44MM, UK2RDX, YU4FRS and UB5ZE.

That's it for the month; trust you've enjoyed it as much as I. Particular thanks to Eric L3-0042 for the comprehensive CW report and Bill VK3VYP, especially for the information on 15.

QSL INFORMATION

F9UW/3A — via Home Call.
KH3AB — via KB7MO.
5N0DOG — via W4FRJ.
CSADS — via DL1LO.
H21AB — via KB8PYD.
ZF2EU — via K5HFT.
VS6CT — via KB9N.
CR9C — via DL2RM.
9K2AH — via JA8BI.
H44MM — via K1MM.
KV4AB — via PO Box 7055, St. Thomas, Virgin Islands.

JA1JWP/JD1 — via JA1RJR.
3D6AO — via PO Box 1, Mhlume, Swaziland.
5Z4YV — via JA2KLT.
ST2FF — via YU2DX.
TL8CN — via W5RU.
VP2MLB — via W2IRS.
VP8WA — via WA4JQS.
KH0AC — via K7ZA.
VO2CW — via New Manager VE3ICR.
VP1MK — via N0BNY.
J88AQ — via W2MIG.
J28CM — via Box 215, Djibouti.
J28NB — via Box 2722, Auckland, NZ.
FH8CO — via BP76, Dzaoudzi, Mayotte Island.

QSP

FREQUENCY SPECTRUM

According to Richard Kirby, director of the CCIR of the ITU, not enough work is being put into finding better ways of utilizing the radio spectrum. Continuing his speech at a recent IEE conference in London he said that studies of spectrum utilization ought to be better recognised as a legitimate and challenging discipline of communication science and many university faculties and research budgets did not recognise this fact. Mr. Kirby outlined the work of the CCIR in this field along five main areas: bandwidth — efficient modulation (interference-resistant modulation — spread spectrum), frequency re-use, domestic and regional satellite systems, the role of HF and improvement of equipment standards from the point of view of spurious emissions, and unwanted responses. — From IARU R3 News, February 1981.

A La Mode

The following is an extract from the Royal Naval Amateur Radio Society Newsletter for summer 1980.

"You may like to print the following story which may raise a smile or two among the membership. I was reminded of it upon reading G4CDZ's story of a transmitter in a boat many years ago.

This story concerns an exercise dreamed up for the Med. Fleet in the 50s in which a squadron consisting of one carrier, several cruisers and a multitude of destroyers and frigates were supposed to effect a landing in Malta. As a precursor, a secret agent was to be landed in Sliema Creek from instructions passed to him from another spy in the bay. Having landed, the intention was for the main spy to direct the Fleet to a close position whereupon Naval Forces would be landed and the island taken.

Thus, early one forenoon, a young telegraphist armed with a new type of walky-talky found himself being pulled in a standard pussers whaler from Grand Harbour around to Sliema. He was there landed upon a rocky promontory and told to call from time to time, using a special call sign, so as to direct the main spy to the rocky promontory.

Apart from the special portable transceiver, he had been detached to his position armed with a packet of sandwiches

and two or three bottles of blue. (A special Maltese brew much loved by Maltese.)

Now it was a hot day, and having set up the equipment and tested it, the young telegraphist found he was both thirsty and hungry. Consequently a few sandwiches disappeared (herrings-in), quickly followed by one of the bottles of blue. Despite the heat and the effects of the bottles of blue, our young operator checked the gear from time to time, and time quickly passed. The forenoon ended, the afternoon watch progressed and the supply of herrings-in and beer quickly disappeared.

It must have been towards the end of the afternoon watch when a boat appeared in the distance and quickly drew near to the rock on which our young telegraphist had been placed. An irate PO Tel leapt out of the boat, rushed up to the operator and said, 'What the hell have you been doing?'

'What's up Potts?' said the operator.

'What's up!' said the PO Tel, 'Where've you been all day?'

'I've been here Potts, using the call sign I was given, nobody came back to me though'

'You are in the rattle,' said the PO Tel, 'the whole exercise has been loused up because of you.'

'It wasn't my fault Potts,' said the young operator, 'I've been calling like mad every 15 minutes and no one has come back to me.'

'Well we didn't hear you,' said the PO Tel.

'Hey, what's that rig you're using there?'

'Oh, it's a new one Potts, we've got several of them aboard in Neon.'

'I've never seen one of those,' said the PO Tel.

'What type is it? Hey, wait a minute, that is an FM rig you have there.'

'Oh yes, it's an FM rig. What are you using?'

'Oh, no wonder, the modulation is different,' said the PO Tel.

Yes, one half of the Mediterranean Fleet had put to sea in readiness for the landing, using AM equipment, whilst the spy located at Sliema Creek had been issued with a, what was then new, transceiver using Frequency Modulation.

How many thousands of pounds had been expended that day on fuel oil apart from anything else, goodness only knows. Certainly that was one landing that was never made and all because of a simple mistake, the difference between AM and FM. I had never heard a word from the Fleet and they in turn had not heard my transmissions. If there was a court of enquiry I was not present. I can only assume that my CCO at the time took the can back."

This contribution, culled from the RNARS Newsletter, was contributed to that publication by Derek G3NTB.

From SA Journal, December 1980.

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At Liverpool and Districts Amateur Radio Club Field Day 22 March 1981

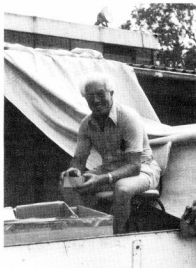


Start of the "Find the Beeper" hunt.

Athol VK2BAD and Lloyd VK2YOU/VCF.



Doug VK2ZYM with his doppler scan antenna.



John VK2VUK selling gear.



Hounds lined up for the mobile foxhunt.

TAREE AMATEUR RADIO CLUB

Meetings: SES HQ, Victoria Street, Taree, on second Tuesday of the month at 7.30 p.m.

Club net: Mondays on 28.480 MHz at 8 p.m.

Controller: Bruce VK2NCK.

Classes for NAOCP and AOCP held at Chatham High School, Davis Street, Chatham, on Wednesdays at 6.30 p.m. Correspondence to Secretary, PO Box 712, Taree, NSW 2430. ■

VHF-UHF

An expanding world

Eric Jamieson,
VK5LP



Forrester, S.A. 5233



MAY 1981 VHF/UHF BEACONS

Freq.	Call Sign	Location
28.335	VK2WI	Sydney
50.005	H44HIR	Honolua
50.100	KH6EQI	Pearl Harbour
51.022	ZL1UHF	Auckland
51.999	YJ8PV	Vanuatu
52.013	P29SIX	New Guinea
52.150	VK5KK	Arthurton
52.200	VK8VF	Darwin
52.250	ZL2VHM	Palmerston North
52.300	VK6RTV	Perth
52.320	VK6RTT	Carnarvon
52.330	VK3RGG	Geelong
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.400	VK7RNT	Launceston
52.425	VK2RAB	Gunnadah
52.435	VK3RMV	Hamilton
52.440	VK4RTL	Townsville
52.450	VK2WI	Sydney
52.500	JA2IGY	Mie
52.510	ZL2MHF	Mt. Climie
52.800	VK6RTW	Albany
53.000	VK5VF	Mt. Lofy
144.010	VK2WI	Sydney
144.162	VK3RGI	Gippsland
144.400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144.600	VK6RTT	Carnarvon
144.700	VK3RTG	Vermont
144.800	VK5VF	Mt. Lofy
144.900	VK7RTX	Carnarvon

145.000 VK6RTV — Perth
147.400 VK2RCW — Sydney
432.400 VK4RBB — Brisbane
432.450 VK3RMB — Mt. Bunningong

No changes to the beacon list but the need to continue to list the Hawaiian beacon has been again proved with it indicating openings to KH6 during the month.

Last month I asked the various custodians of the beacons to furnish me with information about their particular beacon, as I am continually being asked for such information. Please don't forget to let me know soon.

NEWS FROM TASMANIA

Ian VK7ZZ sends information of a general nature of the type of activity being pursued by various stations, particularly in southern VK7. Overall, 6 metre DX has been good, starting 18/11/80 when Hobart stations worked ZL2, 3 and 4, to be followed on 20/11 with VK8GB after hearing the Darwin beacon for a couple of hours. 23/11 produced a good opening to JA with call areas JA1 to 7, many contacts on CW due to local noise. As time and days progressed contacts were again made to ZL plus P29 and H44.

13/3/81, whilst being Friday 13th, was not unlucky for the Hobart boys when VK7ZTA, VK7ZIF and VK7ZZ worked KH6IAA, and VK7ZZ also worked KH6FQ. Signals came in from slightly south of east, which was rather unusual. The KH6EQI beacon was S9+ for over an hour. Also heard were two W6 stations, but they could not be worked as they were operating on the KH6EQI frequency and their attention could not be attracted!

The Hobart 6 metre beacon is being widely heard, and reports have come in from VK, ZL, JA, P29 and G-land!

On other bands Ian reports a number of contacts to VK3 on 144.1 from Hobart area but overall 2 metre activity down there is not great. Seven stations are now on 432 MHz, and four stations have indicated interest in going up to 1296 MHz. Thanks for writing, Ian.

MELBOURNE ACTIVITY

Gil VK3AUI reports a drying up of JA contacts during February, one late opening at 1400Z to VK3NM.

Contacts to Hawaii were made on 13/3 at 1014Z to KH6IAA, and again on 15/3 when KH6 was available from 0700Z, and KH6IAA again on 16/3 about 0930Z.

Gil reports 15/3 a classic example of signals not making it to 52 MHz. At 1039Z heard JA8AQ on 50.099 559, 0145Z JA8JSG 5 x 9 on 50.105, 0150Z JA8EJH 5 x 9, 0145Z JH8BLJ 5 x 9, both on 50.105. A very big JA dogpile on this frequency. Almost no signals on 52 MHz only a couple of weak contacts in Melbourne with everyone trying very hard. Same day at 0916Z heard VK4RO working KH6, with the signal from Ross coming in from north-east, indicating some form of scatter signal. From 1030 to 1125Z an opening to VK with JA1, 2, 3, 6 and 7.

On 16/3 starting 0032Z JAs on 50 MHz observed calling LU in Spanish, but nothing on 52 MHz. Thanks, Gil.

THE VK5 REPORT

As I have been tied up somewhat during March working for a big local community project which fortunately has now successfully been and gone, I rely on my old friend John VK5ZBU for those interesting snippets of news which show how March treated us and some other places.

3/3: Es to VK2. 5/3: Auroral propagation VK2 and VK3 to VK5RO. 11/3: VK TV into California at 40 dB over S9 during the morning according to W7KMA. 15/3: JA7NAM to VK5ZBU 5 x 9. 16/3: KH6IAA to various VK5s peaking 5 x 9 at VK5LP. W6XJ to ZL.

17/3: 1250 to 1430Z "wall to wall" JAs 5 x 9, all districts including a number of new ones, an incredible opening. 1440Z KG6DX to VK5ZBU and VK5AVQ during another CW dogpile on low end of 52 MHz. 18/3: VP2VGR Virgin Islands cross-band to VK2 and VK3. Initial tries to get them up to 52 MHz unsuccessful, MUF apparently only to 51 MHz. 19/3: DL3ZM/VY5 Caracas, advised via 28.85 trying on 52.020, only weak blips heard.

21/3: WA4TNV/KL7 on 52.044 around 2345Z (actually 20/3 GMT day) worked by VK5RO and VK5ZPW, and just missed by VK5LP due to fading out at 0051Z. When Peter worked him about 0001Z he was 5 x 7 here! Last trace of Clay was at 0018Z. He showed up again between 0235 and 0310Z when I am told VK5AGM worked him. WA4TNV/KL7 also noted worked in VK2 and VK3. His signals here had very heavy QSB on them, seeming to indicate a rather low angle path. I was not surprised at something like this happening as various signals from the USA had been noted for days previously around 42 to 43 MHz in the mornings up to S9, and they were still being heard by VK5LP on 22/3 and 23/3. Also received a report that Bob VK1EAVX had heard a VK5 during the contacts on 21/3.

LONG DISTANCE TO NEW ZEALAND

John VK5ZBU passed on the mouth watering news that at least ZL1QM, possibly others, on 28/3 between 2000 and 2200Z (our local morning of 29/3) had worked the following: ZF2GR Grand Cayman Is., near Cuba; VP2VGR British Virgin Islands; KV4FZ American Virgin Islands; VPIA possibly Belize area; C6ADV Bahamas; KP2A and NP2AE areas unknown; all contacts in Caribbean areas, which is a very long haul even from New Zealand. To give some idea of the spread of signals FO8DR was also worked; the Tahiti station also heard or worked in VK7 to S9+. I did hear some of these signals had been heard in VK2 and VK4 but this is unconfirmed. Altogether a very worthwhile effort, and hopefully one which might lead to something good for VK stations.

Also noted on 30/3 that KH6 was working H44 and VK4 about 1000Z. Going back

to the New Zealand contacts on 28/3 here is further proof of what you can do if you have that segment on the low end of 50 MHz. The stations were all worked between 50.095 and 50.100, so what hope do we have in VK to break in on something like this? By the time the overseas stations have worked out what is available on those frequencies there is no hope for any worthwhile signals appearing on 52 MHz.

APPRENTICE OF THE YEAR

Congratulations to **Lewis VK6ZGO** of Kalgoolie, who has been presented with the Electrical Apprentice of the Year Award for 1980. He is in his final year and is apprenticed to the WA School of Mines.

He won a grant of \$1000 and will travel to Sydney to compete with other State finalists for a \$5000 prize which will be awarded to the National Apprentice of the Year.

Many have worked Lewis on 6 metres and we all hope he does well in the future. Thanks to the WA VHF Group Bulletin for that news.

NEW HOME FOR SERG

The South-East Radio Group at Mt. Gambier now have a new home at Olympic Park, Mt. Gambier, which, after some renovations, would be occupied by the time you read this.

Members have also found the Club is not quite as old as originally thought, only 20 years instead of 21, so the special 21st birthday dinner has been deferred until a date to be announced in 1982.

I note also from the "SERG Bulletin" that the Annual Convention Registrar, Mike VK5AMT, has been transferred to Port Augusta, and the Co-ordinator, Peter VK5ZBF, now does shift work, so there are two positions which need filling in order for the Convention to go ahead. I am sure I speak for all those who have attended Mt. Gambier Conventions that the loss of the Convention would be a great blow to amateur radio — let us hope the remaining members close ranks and keep it going.

SIX METRES TO G-LAND

I suppose it is a matter of perspective or something, but I note in the January 1981 issue of "The Short Wave Magazine", published in the UK, that the world startlinging contact between Andy VK6OX and G4BPY, G3CQJ and G5KW on 27/11/80, 52 MHz to 28 MHz respectively, rated only 14 lines of column width, three lines of which were devoted to mentioning the Carnarvon beacon!

NEW ZEALAND AGAIN

There hasn't been much reported about just what the 50.0 to 50.150 MHz segment has meant to the ZL operators, but the following is a summary of what has been happening recently according to the January/February issue of "Break-In".

"Cliff ZL1MQ writes with an interesting summary of 6m openings so far this season: Six metres first opened to the Northern Hemisphere on 10/10/80 when

W6YDF worked ZL1MQ on CW and ZL1AUM on phone. 23/10 opened to W6 with W6BYA, W6YDF, K6HHJ, WA6JRA, K6RMJ, K6QQN, W6BMB and WA6PZL being worked by the locals. 25/10 saw W6XJ, K7KV, W7FN, W7FLD, WA7BAC and other W7 stations. 10/11 and 11/11 open to W6 and W7, while on 11/11 ZL1MQ worked VE1ASJ. 15/11 W6 and N5ARS worked. 17/11 KL7WE and VK3 on 52 MHz. 18/11 W5UWB and XE1GE worked. 20/11 ZL1QS worked XE1GE. 25/11 a super day for W stations, all districts worked by some ZL stations. 21/11 and 23/11 saw JA worked by ZL1. 29/11 and 30/12 worked five ZL1s.

"11/12 ZL1 to ZL4 open. 6/12 ZL1 to ZL2. 13/12 open to ZL4. 27/12 ZL4, VK2 and VK4. Band open to VK all call districts 28/12 to 31/12. 27/181 ZL1MQ to FK8CR, FK8AB, later Y8PD. Cliff concludes with comment that W openings have been above average, VK openings the best in 22 years. He has now worked 16 countries on 6 metres and notes 22 per cent of Northern Hemisphere contacts were on CW — a thought for the anti-CW brigade!"

Additional to the above, and still from New Zealand, Brian ZL2BFC reports:

"Bob ZL3NE in Christchurch enjoyed good DX in November. On 17/11 at 0800Z Bob worked VE1ASJ and VE1AVX with signals 5 x 7 to 5 x 9. Graham ZL3AAD quotes the distance to VE1AVX as 15,555 km and VE1ASJ as 15,478 km which should give Bob the ZL 6 metre DX record unless someone further south worked him. Bob reports that at the time he had Ws 1, 2, 3, 8 and 9 and VEs coming in at once up to S9+ on the FT200 S meter. To quote Bob 'you will be able to imagine the pile up calling me, which has been borne out by the QSL cards received, all kW stations with big antenna on 12m beams and 30m high. I really only touched the top of it working 24 Ws in all the above call areas. A VE3 was heard in the pile-up but I could not identify him.' Bob goes on to say the band was in and out until 1230Z, when the VKs hit, followed by JA to 1300Z. By 1400Z they were all S9, fading around 1500Z only to return at 1645Z and staying until 2000Z. Early evening saw KH6IAA, W6HTH/KH6 and KH6FQ worked amongst the JA and VK stations. KG6DX heard Bob that night but due to local QRM was not heard in Christchurch. He finally pulled the switch at 2140Z, having QSOed 102 stations outside ZL: 2 VE, 24 W, 3 KH6, 60 JA and 13 VK.

"Over the following eight days Bob ZL3NE worked a total of 170 DX QSOs, including XE1GE. He wonders whether anyone has bettered 102 outside ZL contacts in one day or is this a record too? His equipment on 6 metres consists of an FT200 driving an FTV650B transverter to a 5 element beam on a 9 metre mast. On receive he has a low noise pre-amp with 25 dB gain, making operation on 6 metres just like 80 metres!"

If that report doesn't serve to indicate firstly that being a bit closer to North America as New Zealand is has a lot in its favour, and secondly that having 50 to 50.150 MHz as well, then we in VK are only now really beginning to realise what we have missed out on through not having an opportunity of operating near the 50 MHz end of the band. Congratulations to the New Zealand amateurs who have been making the most of the opportunities presented to them by a sympathetic administration.

TWO METRES

Largely quiet this month at my location — several contacts with Jeff VK5YU at Tallem Bend near Murray Bridge but as mentioned earlier, March has been a busy month in other ways here.

TECHNICAL TIP

Have you ever wanted to tune up a piece of solid state 432 MHz equipment and not had a source of weak signal with which to do it? You need something which is stable, low in output and free from spurious signals.

If you have a good 1 MHz crystal calibrator rich in harmonics which go right up to 432 MHz and beyond then you have something with which to start. The one I use is built from a circuit published in "6 UP" some years ago by Rod VK2BQJ, which was actually capable of giving some output right up to 1296 MHz. I feed the output through a tuned cavity filter tuned to 432 MHz, which then eliminates signals other than those I need, thus removing any high amplitude broadband signals, so that I finish up with a low output stable 432 MHz signal with which to tune up a pre-amplifier, front end or other stages of the receiving part of the transverter, etc.

Doing the job this way will get the various tuned stages working pretty well; you can subsequently give things a tweak up if you want to when you can get someone on the air to provide the necessary weak signal, but if you have everything well shielded from the calibrator in a metal box, coupled to the filter through coax cable and then on to the converter the same way, you won't be far out for most purposes.

Closing with the thought for the month: "We are not primarily put on this earth to see through one another, but to see one another through."

73. The Voice in the Hills.

CLUBS

The 1981 WIA CALLBOOK will contain a Club Listing.

Please send Club Details direct to:
WIA, Box 150, Toorak, 3142
as soon as possible.

Same data required as in the 1979
WIA Call Book.

AROUND THE TRADE

ANTENNA FARM

For some time, there has been an absence of information published in amateur radio magazines regarding antenna towers of Australian origin, although in Victoria, at least, they have been available. As far as can be ascertained, only one model of a crank-up, tilt-over self-supporting tower is available. Because of this apparent lack of options for the buyer, A. G. Wilkey decided to offer initially two basic models, one of 32 feet in two sections, and the other of 45 feet in three sections.

The use of short telescoping sections results in advantages in manufacture, transportation and, most importantly, in handling the tower with antenna attached, because of the shorter radii in the tilt-over position.

These towers are designed to withstand 144 k.m.h. (90 m.p.h.) winds with the equivalent of a TH6DXX and heavy duty rotator on top, and will pass local government inspection. Drawings and engineering computations will be supplied to purchasers for the purpose of gaining an erection permit.

All ferrous components are hot-dip galvanized to very high standards. The winches for telescoping and tilting are provided with a "load brake" for maximum safety. Each tower section has a positive locking arrangement, not relying on the winch and cable for permanent support. Antenna support pipes and weatherproof thrust bearings at the option of the purchaser, to suit rotators and antenna mast brackets, be they large or small, can be supplied. Should there be a demand, the company can also supply extra sections of tower for either free-standing or guyed arrangements.

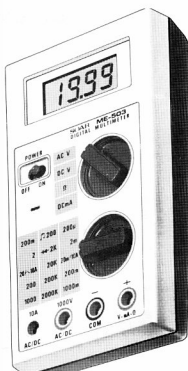
Installation will be arranged and the type of ground support system can be varied to suit soil conditions.

For inspection of complete towers and further information, contact Arnold Wilkey VK3AGW on (03) 56 4465, or after hours VY4 4111, or write to Antenna Farm, P.O. Box 106, Oakleigh, Vic. 3166 ■

NEW HAND HELD DIGITAL MULTIMETERS AVAILABLE SOON IN AUSTRALIA

GFS Electronic Imports of Mitcham, Victoria, should soon have available two new low cost hand-held digital multimeters manufactured in Japan by a well established electronic instrument maker, Soar Corporation.

These new 3½ digit DMMs are the models ME-501 and ME-502. Both have liquid crystal displays and use large scale integration (LSI) solid state techniques, consequently they are highly durable and have a battery life extending up to 200 hours. Both low battery and automatic polarity indication is provided for in their



displays. All ranges are fully overload protected and zero adjustment is automatic.

The ME-503 (shown in photograph) reads DC and AC voltage up to 1000 volts, DC and AC current up to 10 amps, as well as resistance. A handy feature when in the resistance mode is a built-in buzzer for use during circuit continuity checks. Input impedance on the AC and DV voltage ranges is 10 megohms.

Soar's ME-501 is similar in many respects to the ME-503 but has only two AC voltage ranges, 200 volts and 1000 volts, although provision has been made in its design for transistor hFE measurement over a range of 0 to 1000.

The expected selling prices of the ME-503 and ME-501 are \$135 plus ST and \$99 plus ST respectively.

For further information about these two new digital multimeters contact the distributors, GFS Electronic Imports, 15 McKeon Road, Mitcham, Victoria 3132. Phone (03) 873 3939, Telex AA 38053 GFS. ■

NEW UPDATED SYNTHESISED VHF AERONAUTICAL AM RECEIVER



An updated version of the already well known Synthesised Airband Receiver, the Connal Model-R1010 was recently released.

The R-1010 is intended for use in a wide range of applications from airlines, Department of Transport, to flying clubs and home use. It is designed for operation on both 240 volts AC and 12 volts DC. All vehicle mounting hardware is supplied.

A phase locked loop frequency synthesiser is utilized, giving full frequency coverage with 25 kHz channel spacing from 108 to 136.975 MHz, the entire VHF navigation and communication aeronautical band. Highly effective impulse noise reduction is achieved by using multi-stage Active IF Noise Blanking circuitry. A sensitivity of less than 1 microvolt for 20 dB signal to noise ratio is boosted by making use of a double conversion superhetrodyne receiving system.

Frequency readout is provided by a red LED 5 digit display. Easy selection of the 1120 channels being achieved by use of a coaxial type channel selector switch and a front panel mounted LED gives the R-1010 user a received signal indication.

The unit weighs 3 kg and measures a compact 160 mm wide by 56 mm high by 250 mm deep (less knobs, feet and connectors). It is supplied complete with a detachable telescopic antenna for situations where desk top operation is required.

Further information on the Connal R-1010 can be obtained from GFS Electronic Imports, 15 McKeon Road, Mitcham, Victoria 3132. Telex GFS AA 38053. Phone (03) 873 3939. ■

NEW RANGE OF 15-45 MHz OSCILLOSCOPES DUE FOR RELEASE

Also from GFS Electronic Imports of Victoria comes word of a new range of Japanese oscilloscopes to be released in this country soon.

The new range of five models, including one portable, is manufactured by Soar Corporation, a well known and long established Japanese instrument manufacturer.

All models use rectangular CRO tubes, having a built-in graticule which gives high resolution and brightness with a minimum of parallax error, are all dual trace and supplied with dual x1 and x10 probes. A front panel mounted trace rotation control is fitted to allow easy compensation for variation in terrestrial magnetism.

Starting at the bottom of the range (frequency wise) is the model MS-3015, a 15 MHz portable oscilloscope, which features a 95 mm CRT, sensitivity of 2 mV/DIV over a frequency range DC to 15 MHz, add, subtract, chop and alternate trace modes as well as X-Y. Power sources may be 180 to 260 volts AC, 11 to 30 volts DC or an optional nicad battery.

Next comes the model MS-6020, DC to 20 MHz, 5 mV/DIV, 140 mm CRT. Operating modes include single channel, dual subtract or add. Power requirements are 180 to 260 volts AC, 11 to 30 volts DC.

Very similar in specifications to the MS-6020 is the MS-6021, but it features in addition a built-in delay line for variable delay triggering.

Moving up to a 40 MHz oscilloscope, Soar have the model MS-6040, a CRO that uses a 150 mm CRT with metal-back-post-deflection-accelerator and internal graticule., acceleration potential on the CRT is 15 kV. The 3 dB bandwidth is DC to 40 MHz with a rise time of less than 7.7 nSec. Vertical amplifier modes include single channel, dual, add, subtract, chop and alternate. As with the MS-6021 a trigger delay line is included for up to 120 nSec delay, allowing its user close analysis of waveform rise times. Power requirements are 240 volts AC \pm 10 per cent.

For those requiring a CRO with a 3 dB bandwidth DC to 45 MHz, Soar have the MS-6045. It is essentially the same as the model MS-6040, but with extra bandwidth.

GFS claim that the price range of the new Soar oscilloscope makes owning a high frequency CRO much more economical than it used to be.

If more information is required on the Soar range of oscilloscopes, contact the Australian Distributors, GFS Electronic Imports, 15 McKeon Road, Mitcham, Victoria 3132. Phone (03) 873 9939. Telex AA 38053 GFS.

VICOM MODEL IC-M1 2m 10W BOOSTER AMPLIFIER

Icom Osaka, Japan, through their representative Vicom International, announce the release of a booster amplifier for connection to hand-held transceivers such as the model IC-2A, which increases the output from 2.4W to 10W.

Because of its small size and light weight the amplifier can be mounted in a small space in the car. The amplifier can be controlled through a DC voltage superimposed on the interconnecting coax cable.

When the power switch of the amplifier is turned to the "off" position, the amplifier circuit is bypassed and the 2.3W output from the IC-2A is fed directly to the antenna. The amplifier covers the frequency range of 144 to 148 MHz and operates from 13.8V DC with a power requirement of 3 amps maximum. The drive requirements are 2.3W for a power output of 10W.

The size of the unit is extremely small having a weight of 320 gms and dimensions of 35 mm high, 63 mm wide and 160 mm deep. It comes complete with power cord, coaxial cable, screws and other hardware. The unit contains a total of 6 transistors, 10 diodes and 1 integrated circuit, and further information and details can be obtained from Vicom International in Melbourne, phone 699 6700 or their Sydney office, phone 436 2766. ■

IC-ML1

Icom has announced the release of their power booster for the IC2A hand-held. The IC-ML1 is a ten watt power booster designed to facilitate mobile operation of the IC2A. Because of its small size and light weight the amplifier can easily be mounted in a small space permitted in modern motor cars.



The DC voltage for transmit/receive switching is superimposed on the RF coaxial cable, this permits the amplifier to be controlled by a single coaxial cable connection. It also has the added benefit that, unlike carrier control methods, there are no initial transmission cut-offs occurring. In addition to this, the IC-ML1 has APC circuit. When the collector current drain is over that specified, the APC circuit functions to deactivate the booster to protect the final transistor from damage.

The package contains 17 semi-conductors and its performance is bound to be a winner with amateurs who already have the popular IC2A hand-held.

There are a limited number of these power boosters in stock at Vicom International Pty. Limited, 68 Eastern Road, South Melbourne, phone 699 6700, or at their Sydney office, 339 Pacific Highway, Crows Nest, NSW, phone 436 2766. ■

Andrews Communications Systems

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\$699

12 months warranty

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- YM-36MIC \$20
- FC-707 Ant. Tuner \$139
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YAESU FT-707 BOTH IN STOCK NOW!

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YES Dual 8 pole SSB filters fitted
YES variable bandwidth selectivity
YES Full 100W output ALL bands
YES Speech processor
YES Opt. 12 ch. memory/scanning
YES Opt. tuner w/dummy load SWR/PWR
YES AM with AM filter fitted

\$699

- This is a Genuine Offer
- Full Parts and Labour Warranty

KENWOOD TS-130S

YES
NO
NO, IF shift
NO, less on 10m
YES
DFC-230 is 4 ch.
NO, tuner w/SWR
NO

\$729 Even less for Cash

THIS MONTH'S SPECIALS

KENWOOD R-1000 Rx	\$469
KENWOOD SP-120 speaker	\$24
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YAESU FT-207R 2m hand held	\$319
YAESU FT-107M DMS Tcwr	\$1,195
YAESU FL-2100Z (inc. WARC)	\$525
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AWARDS

COLUMN

Bill Verrall VK5WV
7 Lilac Avenue, Flinders Park, SA 5025

"GOLD AWARD"

1. This award is available from the Gympie Amateur Radio Club to all licensed amateur radio stations and shortwave listeners.
2. Stations must obtain ten (10) points by working Gympie Amateur Radio Club members. Overseas stations need only obtain five (5) points for qualification.
3. Stations can be worked on any band using any mode. Active modes are SSB, CW, FM, AM, RTTY.
4. Contacts on HF count as one (1) point each. Contacts on VHF (52 MHz and up) are worth two (2) points each.
5. A contact with the club station (VK4WIH) count as two (2) points on any band.
6. Contacts via repeaters are not eligible.
7. Stations can be worked once on each band.
8. QSL cards are not required. Applicants must send a log extract containing all relevant informations (date, time, frequency, mode, signal report, call sign).
9. Cost of the award is \$1 or three (3) IRCs. Overseas stations \$2 or five (5) IRCs.
10. Contacts after the 13th October, 1980, are eligible.
11. Address all applications to Awards Manager, Gympie Amateur Radio Club, PO Box 384, Gympie, Qld., Australia 4570.

12. Description

The award is printed on gold card with the motif and antennae towers in silver and all other printing in black. It measures 225 mm x 265 mm.

NORTH WEST AWARD

1. Purpose

To promote interest by Australian and overseas amateurs and SWLs in contacting amateurs in the North West Region of Western Australia and to promote radio activity within the area. The North West Region is defined as that area north of the 26th South Parallel.

2. Rules and Conditions

Only contacts made from outside the North West area after 1st January, 1980, will count and an extract from the log countersigned by two other licensed operators is to be provided. The Committee reserves the right to alter the rules governing the granting of the award should future circumstances or changes require that action. However, in any event the first one hundred awards shall be granted on the basis of these rules. Should any dispute arise

gympie amateur radio club

GOLD AWARD

This is to certify that

*has submitted evidence of
having fulfilled the necessary
conditions set down for
this award.*

Dated this day, the _____

of _____

Award Number _____

Awards Manager

President



WESTERN AUSTRALIA

The
North West Radio Society

is pleased to Grant the

North West Award

to

in Commemoration of having made
contacts with Amateur Radio Stations
in the North West of Australia

to

Awards Manager

regarding eligibility of applicants, or interpretation of these rules the awards manager's decision or that of the NWRS Committee shall be final.

For the purposes of the awards different locations shall be taken to mean two areas 40 km or more apart. Contacts must take place with both stations transmitting within 500 kHz of each other. On VHF, terrestrial repeaters cannot be used. Contacts can take place once only per station using any satellite recognised as one used primarily for amateur radio. Contacts can take place with the same station twice only providing that that station has operated from two different locations and 30 days has elapsed between contacts. Contacts may be made with portable or mobile "North West" stations so long as the area of the portable or mobile operation is stated. The operator applying for the award must have made all the qualifying contacts from inside an area of 50 km diameter, except that if all contacts are made while operating mobile then all contacts must be made from within one call prefix area.

3. HF Award

The applicant must contact at least one of the club stations, VK6MN in Newman or VK6ANW at Port Hedland, plus any other amateur operator within the designated North West area according to the following:

No. of Contacts Required

6
8
10

No. of Different Bands Used

Three or More
2
1

Contacts must be with operators from at least three different areas within the North West, and over a minimum period of 48 hours from first to last contact.

4. VHF Award

The applicant must contact three North West stations in at least two different locations over a minimum period of 24 hours on any authorised band over 30 MHz. Contacts must occur within the terms of the operator's licence.

5. SWL Award

The applicant must submit a counter-signed extract from their log for either HF or VHF contacts made according to the conditions detailed above.

6. Cost of Award

- (a) VK Operators, \$150.
- (b) Overseas Operators, \$A250.

7. Applications

Applications shall be forwarded to Awards Manager, North West Radio Society, PO Box 282, Port Hedland, Western Australia, Australia 6721.

8. Description

The award is printed in black on cream and measures 295 mm x 210 mm

ERRATA IN MARCH LISTINGS —

DXCC top listings should read:

Phone: VK3OT, 288/289.

Open: VK3NDY, 233/234.

FAMOUS AMATEUR MICROPHONE NOW AVAILABLE IN DUAL IMPEDANCE SHURE MODEL 444-D



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TRY THIS

WITH THE
TECHNICAL EDITORS

CURING TVI

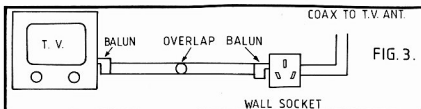
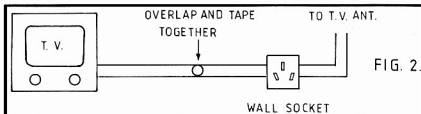
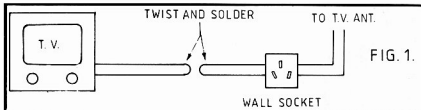
Here is an easy way to solve your neighbour's TVI problems. Yours, too, providing the TVI is caused by HF fundamental overload, not by VHF parasites or harmonics radiated on the TV channels. Essentially it is a quick and simple high-pass filter, made as follows.

Cut the 300 ohm ribbon between the TV set and the wall socket, twist and solder as in Fig. 1. Now switch the TV set to Channel 2, and overlap the two ends. Carefully adjust the amount of overlap until noise-free reception is just achieved, i.e. less overlap produces visible snow. Now tape the ends together as in Fig. 2.

If coax is used, no problems! Just use two 300/75 ohm TV baluns and a short length of ribbon, as in Fig. 3.

I was causing severe TVI on all channels to three of my neighbours. Two of them had very corroded antennas which had been up for over 20 years. Use of the method described completely cured all traces of TVI, and I do run 400W PEP on 20 metres.

The overlap of the feedline provides enough coupling for VHF TV signals to pass, but not enough for HF to get to the TV set.



I must point out that, while this method is excellent in normal signal areas, it may

not be too successful in TV fringe areas. Lionel Curling VK3NM.

NOVICE NOTES



Edited by Ron Cook VK3AFW

In his regular column, "Technical Topics" (TT), Pat Hawker G3VA recently asked the question are all capacitors just capacitors? He then discussed the difference between the various types of resistors and capacitors available over the counter. Because this is an important topic for the novice and because Pat presents the story so well, I have reproduced his article here, with acknowledgements to Pat and the RSGB. The article was published in TT in the October 1980 issue of Radio Communication.

RESISTORS

The once-ubiquitous carbon-composition resistor is today almost obsolete, having been largely superseded by the carbon-film resistor. The film type tends to be smaller, more stable and more readily manufactured to rather closer tolerance. The old high-value carbon-composition resistor, though reliable, when expected to carry a continuous direct current had a tendency for the resistance to increase greatly in use, bringing about gradual deterioration in performance of the equipment.

Carbon-film resistors still retain some of the problems associated with the use of carbon: they have significant negative temperature coefficient (about -300 parts per million/ $^{\circ}\text{C}$); they can be "noisy", particularly when of high ohmic value; and they are subject to flash-over where there are high voltages across the component. Carbon-film resistors with ohmic values up to hundreds of megohms are available.

So, in turn, carbon-film resistors are tending to give way to metal-film types, particularly where higher wattage dissipation is involved. Their use has become normal for wattage ratings of 0.5W to 3W . Temperature-coefficient is positive, about 300 ppm/ $^{\circ}\text{C}$. In low-wattage applications, they offer little real advantage over carbon-film types, but may be specified where it is felt more convenient to use a single type of component. Generally it will be safe to use carbon-film or even carbon-composi-

tion types provided that they are of correct wattage rating and of suitable physical size.

For high-wattage, wire-wound types are still often necessary; it should be appreciated that unless of a specially-wound form, such resistors are very inductive.

An earlier form of carbon-film resistor was the cracked-carbon; these used to be described as high-stab resistors. Metal-oxide (e.g. tin oxide) resistors are often used in professional equipment.

FIXED CAPACITORS

Capacitors present an altogether more difficult problem than resistors; there now seem to be umpteen types, some intended for specific requirements. The suitability of a capacitor for any given application needs to be judged both on basic characteristics and its physical construction: the material separating the plates governs not only the value of the capacitance (dielectric constant) but also its efficiency at different frequencies (power factor); together with the surrounding package it will also affect the DC insulation resistance. The form of construction and the length of the leads govern its "self-inductance", and hence the way the capacitor performs at high frequency. Because of all these variations, basic types of capacitors cannot usually be readily classified as being suitable up to some specific frequency. For example, a capacitor plus a given length of lead may form a series-resonant arrangement which can make it very effective as a bypass capacitor at a frequency higher than might otherwise be the case (see, for example, VHF-UHF Manual). Certain forms of construction enable components to cope well with heavy pulses of RF current and thus make them more suitable for use in electrical-interference suppression applications, etc. Then again, it must always be remembered that the DC voltage rating of a capacitor represents some three times or so the corresponding AC rating (a minimum DC rating of about $1,000\text{V}$ DC is needed for use with 240V AC mains, although it is preferable to use a capacitor rated for AC).

So in practice many different types are now offered: some may be required to provide a very high capacitance in a small

volume; others to form effective bypass capacitors up to the microwave region; still others to maintain stability of capacitance over a long period, or alternatively to change value according to a specific temperature coefficient in order to permit them to be used as temperature compensators in tuned circuits, etc.

Then there are the confusingly large number of plastics materials, some known by trade names. The following notes are therefore far from complete, and it will often be advisable to check catalogues, etc., to discover the characteristics of particular types.

Electrolytic capacitors are now available up to extremely high values (the Americans have even marketed 100F units!) but still tend to permit significant DC leakage current to flow through them. They have a pronounced dislike for high temperatures or high ripple currents, and have limited shelf-life (after being out of service for a considerable period they may need to be "re-formed" by initially connecting them across their nominal voltage via a series resistor); they are "polarized" and must therefore always be connected with regard to polarity. Miniature etched-foil electrolytics are today the most widely used form. They are often very inefficient at RF, and suitable RF bypass capacitors may need to be connected across them. Computer-grade electrolytics tend to have lower leakage current and will permit larger pulses of current to flow in and out of the unit.

Tantalum electrolytics tend to cost more but can be much smaller, usually last longer, have much lower leakage currents, and work better at higher frequencies. If a tantalum type is specified it is advisable to use one. Values are often colour-coded, using the standard colour code and reading downwards from the top of the compact package. Large numbers of tantalum electrolytics are now in use for domestic equipment, etc.

The old general-purpose AF and low RF waxed-paper tubular packages, which often lost much of their initial DC insulation resistance after a few months' use, have been superseded by metallized-foil or, for more critical applications, metallized-film

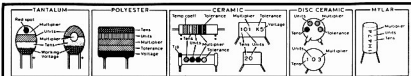


Fig 1. Some of the many colour-coding systems found on UK, American and Japanese fixed capacitors. Unfortunately other (or no) markings may also be encountered.

Colour	Significant figures (1st, 2nd)	Decimal multiplier (M)	Tolerance (TT) (per cent)	Temp. coeff (TC) (parts/10 ⁴ °C)	Voltage (V) (tantalum cap)	Voltage (V) (polyester cap)
Black	0	1	±5	—	—	—
Brown	1	10	±1	-30	—	100
Red	2	100	±2	-40	—	250
Orange	3	1,000	±3	-100	—	—
Yellow	4	10,000	+100, -0	-220	6.3	400
Green	5	100,000	±5	-330	16	—
Blue	6	1,000,000	±6	-470	20	—
Violet	7	10,000,000	—	-750	—	—
Grey	8	100,000,000	+30, -0	+30	25	—
White	9	1,000,000,000	±10	+100 to -750	3	—
Gold	—	—	±5	—	—	—
Silver	—	—	±10	—	—	—
Pink	—	—	±20	—	35	—
No colour	—	—	±20	—	—	—

Units used are ohms for resistors, picofarads for ceramic and polyester capacitors, and microfarads for tantalum capacitors.

capacitors. Paper containers have given way to plastics, i.e. polyester sealed packages, including polyethylene terephthalate (PETP) and polycarbonate. Plastic-film PETP capacitors are generally satisfactory for standard applications, polycarbonate types for high-voltage applications. Both foil and paper capacitors may be housed in tough thermosetting resins in the general category of polyester units. Metallized-film polyester types are of smaller size than foil or paper types. Polystyrene capacitors are often used where good stability is required at medium frequencies (e.g. for IF transformers, oscillator circuits, filters, etc.). Metallized paper capacitors are used where high values need to be combined with stability, and are available up to tens of microfarads. It should be noted that thermoplastic materials and polyester foil capacitors should not be expected to withstand excessive heat during soldering (polystyrene types may be changed downwards in value). Heat-induced faults can appear as "intermittents". The common Mullard C280 polyester capacitors are metallized PETP foil capacitors with standard colour coding.

Plastic film capacitors have very thin layers of metal deposited on the dielectric film. They can be self-healing after an insulation breakdown, and can be significantly smaller in size than foil types of equivalent rating.

Polystyrene is one of the relatively few

plastics used as a dielectric and needs to be hermetically sealed. Larger values may be in rectangular metal boxes, while smaller values are in metal tubes with PTFE insulators. Polystyrene capacitors have low temperature coefficients and may be specified where good temperature stability is needed at high frequencies.

An increasing problem is the many different ways of indicating the values: Fig. 1 shows some British and Japanese codings.

For high-stability applications at HF and VHF (e.g. where the capacitor forms part of a tuned circuit but is not required to provide temperature compensation), silver-mica capacitors are generally specified, and these are available to fairly precise tolerances. There are also various disc types of mica capacitors useful for interference suppression, decoupling, etc. Mica capacitors are also still useful where high RF currents are involved in transmitting applications.

For many RF applications ceramic dielectric capacitors are very widely used, available as "High-K" or more often as "low-K" devices with specific temperature coefficients. Tolerances are usually greater than for silver-mica units. Low-K types are used for temperature compensation of tuned circuits. High-K units are useful for RF bypassing, are available in various disc, tubular, feedthrough forms, and can generally be used up to about 1 GHz since

they can have low series inductance. But always remember that a straight 1 in. length of 23 SWG wire used as a connecting wire represents a reactance of about 16 ohms at 100 MHz! Ceramic capacitors suitable for use to above 10 GHz are available.

Finally one must have some sympathy for the chap who complained that none of his suppliers stocks "nF" values: so a reminder that it will not make much difference to use a 0.001 uF or even a 1,000 pF value instead of 1 nF, or 0.1 uF instead of 100 nF — or vice versa! But note that some designers tend, if only subconsciously, to link a "1,000 pF" capacitor with its RF capabilities, but 0.001 uF or 1 nF types with their performance at AF.

From these notes it will be seen that the question of whether it is safe to substitute a different type of capacitor, if one is available of roughly the same value, can only be decided with reference to the actual circuit application of the component: does this call for a precise value and close tolerance? How important is stability and/or its temperature coefficient? Is the voltage rating adequate? Does it have to cope with signals at 50 Hz, AF, IF, HF, VHF or UHF? Is it physically the right size? Very often in such applications as bypassing, inter-stage coupling, etc., is permissible to use substitutes: the key factor, as in so many things, is to know what you are doing!

Thank you, Pat, for a timely article. ■

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Dear Amateur,

it's definitely worth while to ring our company LAST. If you write or phone we will give you a price, you definitely don't have to call in person to get our best price. Remember, if we can sell it to you cheaper WE WILL.

NOVICE NOTES

THE ACTIVE ANTENNA

T. W. Barnes VK2AB1
74 Cabbagetree Lane, Fairymead 2519

Some time ago, in "Amateur Radio", R. R. Cook VK3AFW, published two articles on an "Active DX Receiving Antenna".

These articles impressed the writer very much, because of his interest in general coverage high-frequency reception. This article describes a circuit devised for this purpose.

The articles proposed an active antenna be erected outside, for example, on the house guttering. The active antenna is aperiodic in the sense that it is no more than 0.1 of a wavelength long at its greatest frequency of use and it is directly coupled to a wide band pre-amplifier, whose output is fed to the antenna terminal of the receiver, in this case by low impedance coaxial cable.

A counterpoise earth was suggested, the advantage of this is obvious.

However, if the risk of coupling line interference into reception were taken, the house wiring earthing system could be made to act as counterpoise and if at the same time a neat metal box were made to house the pre-amplifier and on this the antenna mounted, then the box could be attached to the back of the receiver, giving a very versatile arrangement, in which the antenna goes with the receiver.

The antenna was made from a one metre length of 2.4 mm diameter bare stainless steel welding rod. The power supply came from the receiver and because of this, two radio frequency chokes used in the original project could be done without—a significant saving in cost.

Two of these active antennas have been made, one for a Trio 9R 59DS valve-operated receiver, the other for an FRG7. The power supply for the former was obtained from the 6.3 volt filament supply by rectified/doubler, via the remote operation socket and for the latter, via a small plug and socket specially fitted, from the filter choke in the power supply. See Figs. 2A and B.

The total consumption of the pre-amplifier is approximately 9.0 milliamps.

In connecting the pre-amplifier to the receiver, coaxial cable is not used; direct, short, wire connections are used made to the earth terminal, to the antenna and to

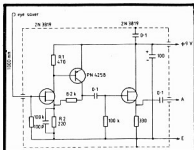


FIG. 1

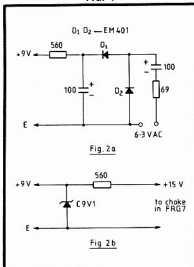


Fig. 2a

Fig. 2b

the power supply for the pre-amplifier. In the case of the FRG7, a short jumper connects the short wave antenna terminal to the broadcast antenna terminal.

The results for each are outstanding, quiet and sensitive from 550 kHz to 30 MHz, and the writer's gratitude to Mr. Cook is acknowledged—reference to the original articles is recommended.

CIRCUIT DETAILS

The circuit of the pre-amplifier is shown in Fig. 1. Figs. 2A and B show the power supplies. Resistors R1 and 2 in Fig. 1 may need minor adjustment for greatest output and quieting; in particular the voltage across R1 should be about 0.7 volts and the EeE on the transistor about 2.5 volts. The 100 pF condenser lifts the output in the upper range of frequency.

The transistor PN 4258 is specified as a saturated switch; it has an F_{et} of 700 MHz, works well, but has a V_{ceo} of only 12 volts. It was the only suitable PNP transistor readily available.

The 560 ohm resistors in Figs. 2A and B also give protection against short circuits or reversed connection to the receiver.

REFERENCES

1. Cook, R.R. Amateur Radio, November 1978, Vol. 46, No. 11, pp. 15, 16.
2. Cook, R.R. Amateur Radio, February 1979, Vol. 47, No. 2, p. 31.

WICEN

CYCLONE MAX

The following is a summary of events seen from the Darwin end.

On Tuesday, 10th March, a Cyclone Watch was announced and contact was established with Alice Springs and Gove.

On Wednesday morning it was changed to a Cyclone Warning and WICEN members were put on stand-by. By midday most Government departments and large shopping centres had closed down so we had all afternoon to prepare.

Local skeds on 80 and 2 metres and interstate on 20 were conducted at intervals during the afternoon and into the evening. By 2200 1K most members had dismantled normal antenna systems and were operating off emergency antennae.

Contact was maintained both locally and interstate the whole evening up until the all-clear was given Thursday morning. Having checked that there was no requirement WICEN was stood down. Interstate contact was kept up to midday.

We are appreciative of the assistance given by interstate WICEN operators who maintained contact all night at the expense of many hours of lost sleep.

It was reassuring to observe the efficiency of VK5 WICEN as they organised rosters, etc.

The cyclone was fortunately not serious. To the SES and WICEN it was an invaluable test of procedures and I am confident that in the future they will be sufficient. My thanks to you all.

There are three points I should like to make in conclusion.

1. The Net Control Station should (and did) maintain strict control of the net even to the point of being ruthless. As conditions deteriorate this job will become more difficult.
2. The best way other stations can assist is to report into the net and then maintain radio silence unless needed. The NCS will decide when you are needed.
2. Standard (SES/Military type) voice procedure should be used as amateur procedure is too long-winded.

73s. T. J. Connell VK8CO,
WICEN Co-ordinator, Darwin. ■

EMC

(ELECTROMAGNETIC COMPATIBILITY)

If radio frequency interference is causing you a problem, your are reminded that "Advice on all types and aspects of interference (PLI, TVI, AFI, etc.) is available from the National EMC Advisory Service".

SEND DETAILS TO
VK3QQ,
Federal EMC Co-ordinator, QTHR.

LISTENING AROUND



With Joe VK2BJX, Buronga, NSW.

AR's recent story about an elderly amateur who, because of his age, was unable to raise the finance to buy himself a rig, and of how a well known Sydney businessman who sells rigs came to his aid, was a beaut story, and shows that there are yet some kindly folk around. The story prompts me to tell you of the difficulties I also have had, for it seems that when one is over the age of 60 one is regarded as a financial risk. You might kick the bucket before you can repay the loan shark.

For economic reasons the Kraco CB rig I bought in 1977 for 27 MHz was converted to give me the 28 MHz band, and I use it via a DS high-powered transverter (K3134) to get on to 80 metres. An AWA carphone (old valve type) gives me Mildura's channel 8 on two metres, and apart from this, despite my full call, I have nothing to operate on the other bands.

So with hopes of getting going on other bands, I called up a Mildura finance firm to raise the wind, as it were. "There'll be no problem," said the managerial voice on the other end of the phone. Just call in and see us, and when we get the OK from our Melbourne office HQ, you should have the money within a day or two, and we'll be happy to do business." ("COME INTO MY PARLOR said the Spider to the Fly" (me).)

So in I went and was welcomed with blossoming smiles all around, and was ushered into that Holy of Holies—the Manager's Office. There was the usual cordial handshake and toothy, artificial business-like smile. He bid me sit opposite him at his desk, and there began some apparently casual questioning. Name, address, how long had I been there, etc., and all went well until he suddenly asked "What age are you?" "Sixty-three," I replied, as honestly as I had done to the earlier parts of the inquisition. Then his

attitude suddenly changed from one of good-neighbourliness to being quite abrupt. "Sorry," he said coldly, "we can't do business with you . . . we'd be BREAKING THE LAW if we did" . . . a cock and bull story if ever I heard one . . . and I was shunted out the office door with now no smiles from anyone on my departure.

So here I am, many months later, still battling along with the faithful Kraco which has served me so well these last four years or so, and the DS transverter which still puts out very good quality RF and audio. Maybe if I wasn't so truthful and lied about my age to Mr. Moneybags, I just might have better gear by now.

So all you "Oldies" who have worked so hard after a lifetime of labour at some other occupation and bringing up your family, to get the ticket at your age (and it isn't easy in middle age), remember the lesson that has been related here by VK2BJX, when you go to see your local Mr. Moneybags to get the dough for your rig—even though he may charge 36 per cent interest—don't tell Mr. Big (no relation to Ronald) your right age if you think you don't look it. And, incidentally, would my Mr. Moneybags have BROKEN THE LAW as he said by granting me a loan? Or was he just fibbing?

Have you heard all the interlopers who are slowly but surely creeping into the 80 metre band? Especially around midnight and early morning, there's commercial BC, high speed CW, RTTY and a lot of other rubbish; and there's the Nips with their fishing boats. I read a story recently of how when Middle East intruders crept in on other bands, somebody wrote to a Middle Eastern Potentate whose Princes were also hams, telling him what was cooking, and result was the Potentate swiped the intruders off the band. Wonder what would happen if we all wrote to that other Oriental Potentate, the Emperor, and asked him to remove his fishing boats off our band! They say they're inscrutable. Maybe he might even do it. At any rate, can anyone tell me if these JAs are Japanese radio amateurs on the fishing boats or are they just commercials? There seems to be a dearth of call signs floating around when I've been listening to the jargon. It looks as if they may not be only fishing boats but PIRATES as well.

And there's the ones that yabber on and play music. I've heard one mentioning "Bangkok" several times on the lower end of 80. One on the higher end was heard to be playing the identifying call of Peking Radio. If we don't do something about it, more of these interlopers will creep into that band and it won't be just in the early morning hours when most VKs are asleep either. It will be a case of "anything goes" if we don't watch out.

In recent weeks some of us working the 80 metre band have been annoyed by carrier droppers who follow us from one frequency to another. Let's hope the official monitoring stations are keeping tag of these birds.

And now for some news about amateurs that I hear or speak to. A German on 28 MHz was heard telling a Yank about his cubical quad on 160. Highest part was 400 feet above ground with feedpoint about 200 feet. What a monster! The German was an official of the German Telecommunications Authority.

Was pleased to have words recently in different QSOs with "Shep" VK5DC, of Heathpool, SA, and Harry VK3XI (near Warrnambool), Victoria. "Shep" came on the air in 1928 when I was just 11 years old learning readin', ritin' and arithmetic at St. Mel's School, Campsie (Sydney). What a marvellous story of the early history of amateur radio either of these two blokes could tell. Harry is famous for his antenna farm and "Shep" gets a mention in the book "A History of Radio in South Australia" (1897-1977) written by J. F. Ross 1978. I'm old enough to remember the days when the amateurs were allowed to play music on the HF end of the broadcast band each Sunday morning and doubtless both "Shep" and Harry have done just that. Harry has been on the air 50 years.

Received a letter recently from Owen VK1CC, of Downer, ACT. A letter which encourages and flatters me a bit. He writes: "Only read your column a few times but have enjoyed it every time. 'Listening Around' is a pleasant interlude in AR." He writes that he's very impressed with the social value of amateur radio, "for there are a considerable number of Old Times who link up with their mates on a daily or weekly basis. Breaks down the loneliness that so many old people suffer from", and with that I can heartily agree. He continues: "Congratulations on getting your full call. Guess we will have to wait for the next column to find out what it is." Well, Owen, my brand new full call was written into the copy last time but somehow it was my Novice call that appeared under the photo.

"Of all people mentioned in your column, the only one I've worked is Des VK3BSB. Still hear him occasionally. Sure are a lot of interesting people out there. Frank 2AMI, probably the longest licensed amateur in Australia, can still handle the hand pump with ease at age 75. Col 2ASF has a recording of famous CW signals—the Titanic going down, Byrd over the South Pole, etc." Incidentally, Smokey Dawson, who recently was guest in the Rev Alex Kenworthy's talk-back on 3AW, mentioned a Melbourne amateur whose QTH Smokey used to sing from when amateurs were allowed on the end of the BC bank in days of yore, who had also been in contact with Admiral Byrd. If I can find my notes, I'll include details in my next column. Owen ends his letter as follows: "Anyway, I hope a few people have written to you and given you some feedback . . ." Oh well, I asked for it!

Now before I sign off, does anyone know how to key a Kraco direct? I believe there is a method, but don't know the details. 73s to all from Joe VK2BJX. ■

CONTESTS

Wally Watkins VK2DEW
Box 1065, Orange 2800



CONTEST CALENDAR

May		
2/3	Alexander Volta RTTY	CQ 5/81
9	World Telecommunication Day — Phone	CQ 5/81
10	"Corona" 10 Metre RTTY	CQ 5/81
16	World Telecommunication Day — CW	CQ 5/81
23/24	IV IBERO-American Contest	AR 5/81
30/31	CQ WW WPX CW Contest CQ 2/81	
30	Townsville Pacific Festival	AR 5081

June	
20/21	All Asian Phone
27/28	ARRL Field Day

June	
1	Canada Contest
4/5	Venezuelan Phone
25/26	Venezuelan CW

EXCHANGES

World Telecommunication Day — RS(T)
plus your ITU zone number.
1960 All Asian Phone results:
Australia —

*VK5OU — 14 MHz	1127 points
*VK2XT — 21 MHz	42924 points
*VK6NAT — 28 MHz	18928 points
*VK6FS — M	90429 points
VK6AJW — M	49600 points
VK2BYX — M	29876 points
VK6JS — M	20304 points

* Denotes a JARL certificate winner.

RULES

The Townsville Pacific Festival Contest 1981.

This contest is promoted in conjunction with the Townsville Pacific Festival and aims to increase activity on all amateur bands of stations in all countries bordering the Pacific Ocean.

Date and hours: 30th May, 1981, 0830Z to 1330Z.

Sections:

- (a) Tx Phone HF.
- (b) Tx CW HF.
- (c) Tx VHF.
- (d) Rx.

Within each section there will be a sub-section of area as per scoring table 3 (a), (b), (c) (d).

1. Except as specified below rules on cross band and mode, repeaters, log keeping and submission will be as per 1980 RD Contest.
2. Stations may be worked repeatedly on all bands and modes provided that one hour has elapsed since the previous contact on that band and mode.
3. Scoring for contacts with stations in countries:
 - (a) Not bordering the Pacific Ocean — 1 point.
 - (b) Bordering the Pacific Ocean (except (c) plus (d) below) — 2 points.
 - (c) VK4 stations (except (d) below) — 5 points.
 - (d) North Qld. stations (VK4 north of 22 deg. south lat.) — 10 points.
 - (e) Club station VK4WIT.
 - (f) VHF contacts over 100 km — 5 points bonus per contact.

4. Logs must be submitted before 25th July, 1981, to —

**The Contest Manager,
Townsville Amateur Radio Club,
P.O. Box 964,
Townsville, Qld. 4810.**

5. Awards: A perpetual trophy is held by the TARC and will be inscribed with the call sign of the operator with the best performance. The operator will receive a smaller trophy. Awards will be given for outstanding performance of stations in various areas.

6. The Contest Manager's decision will be final and no disputes will be entered into.

7. This is a friendly contest and participants could qualify for the Worked

North Queensland Award and awards issued by the Cairns and Mackay Radio Clubs.



IV IBERO — AMERICAN CONTEST

Sponsored by the Union de Radioaficionados Espanoles (URE) Granollers and Mollet del Valles Delegations.

From 2000Z May 23rd until 2000Z May 24th, 1981.

80 to 10 metres, phone only.

Exchange signal report and serial number. Count one point per QSO and IBERO-American countries count as multiplier. Stations and multipliers may be worked once per band. Multiply QSO points by sum of all bands for final score.

Logs must contain band, date, time GMT, call sign, exchanges sent and received, points and multipliers.

An award is issued for more than 50 QSOs.

Logs should be received no later than July 15th, 1981, by URE, PO Box 62, Mollet del Valles, Spain.

IBERO-American countries valid are: CE, CO, CR, CT, CT2, CT3, CP, C9,

CX, C31, EA, EA6, EA8, EA9, HC, HI, HK, HP, HR, KP4, LU, OA, PY, TG, TI, XE, YS, YV, ZP.



JOHN MOYLE MEMORIAL FIELD DAY CONTEST 1981 — RESULTS SECTION (A)

Portable, Transmitting, Phone				
24 Hour				
3CGR	5095	4ADB		440
5OX	4158	4AHO		420
4NBW	2549	4KJV		390
5ABS	1484	4KAC		360
5AAJ	1209	4ZQR		330
6NWA	844	4ZIP		290
4CDX	514	4VX		260
6YE	562	4NDW		260
4AG	450	4NLV		60
4KE	450			
6 Hour				
3BRL	949	4VHY		605
3YSQ/NZM	949	2BQS		424
3BSP	855	4ABV		381
3ADW	647	7AL		335
3ZA	644	5YO		184

SECTION (B) Portable, Transmitting, CW 24 Hour (No Entries)

6 Hour			
2JM	322	5DL	114

SECTION (C) Portable, Transmitting, Open 24 Hour

5CR	1461	2DBA	1076
2VUT	1268	2NWL	428
6 Hour			
2EL	1300	3SP	323
5MX	1002		

SECTION (D) Portable, Transmitting, Phone, Multi-op 24 Hour

3ATL	12437	5ACE	4459
4WIZ	12425	4FM	3732
3ANR	10798	3AWS	3006
3ATM	8005	5ARC	2592
3BML	7831	4WIT	2486
5SR	6349	4WIG	2211
3BGG	6275	8DA	2135
3SAS	6080	3BHD	1690
3XK	4846	2AGH	509

6 Hour			
4WIN	3401	4YX	1198
3ATO	2069	3DIP	949
4AMA/MM	1528	2BOR	758
3BYV	1209	3BR	502

SECTION (E) Portable, Transmitting, Open, Multi-op 24 Hour

2DBK	8389	3BVV	2965
2WG	8104	2BTZ	2578
4WII	6622	5LZ	2229
1WI	5262	5WC	1665
2AOA	3205		

6 Hour			
3BWJ	2000	3AFW	1427

SECTION (F) VHF, Transmitting, Portable/Mobile 24 Hour

3YBK	1621	3YTT	541
3YIW	1302	2YRP	425
2DFY	972	2ASY	82

6 Hour			
3AVJ	744	7ZIE	297
3ZJS	740	7ZAT	260

SECTION (G)

Home Station, Transmitting

24 Hour			
2DXG	1440	2BIP	340
3ZI	1335	3YCU	330
3AEW	1045	4ABY	95

6 Hour			
1MH	735	1DN	375
2DCL	660	5RK	180
5NRN	630	7NBF	165
5NLC	490	2BSB	165
2VX	430	2PGU	112

SECTION (H)

Receiving of Portable and Mobile Stations

L40804, Nancy Heaton, 2900 points.
L30042, Eric Trebilcock, 300 points (CW only).
Check log from VK1CC.

VK/ZL DX Contest 1981

Neil Penfold VK6NE
VK/ZL/O Contest Manager

The WIA and NZART, the National Amateur Radio Associations in Australia and New Zealand, invite world-wide participation in this year's VK/ZL DX Contest.

WHEN?

Phone

24 hours from 1000 GMT, Saturday, 3rd October to 1000 GMT, Sunday, 4th October.

CW

24 hours from 1000 GMT, Saturday, 10th October, to 1000 GMT, Sunday, 11th October.

RULES

- There shall be five main sections in this contest:
 - Transmitting Phone.
 - Transmitting CW.
 - Receiving — Phone and CW combined.
- For VK/ZL only**
 - Transmitting Phone — 8 hour section.
 - Transmitting CW — 8 hour section.
- All amateur bands may be used but no crossband operation is permitted.
- VK/ZL stations, irrespective of the location, DO NOT contact each other for contest purpose EXCEPT on 80 and 160 metres.
- Only one contact on CW and one contact on Phone per band is permitted with any one station for scoring purposes.
- Only one amateur is to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a competitor and must submit

a separate log under his own call sign. This is not applicable to overseas competitors operating club station.

- Cyphers.** Before points can be claimed for a contact, serial numbers must be exchanged and *acknowledged*. The serial number of five or six figures will be made up of the RS (Phone) or RST (CW) report, plus three figures which begin with 001 and increase in value by one for each successive contact.
- Scoring:**
 - For the world: 2 points for each contact on each band with VK/ZL stations. *Single band* score will be QSO points for that band multiplied by total VK/ZL call areas worked on that band. *All Band* score will be total QSO points for all bands multiplied by total VK/ZL call areas worked on all bands.
 - For VK/ZL stations: points for each QSO on different bands as follows: 160m, 20 points; 80m, 10 points; 40m, 5 points; 20m, 1 point; 15m, 2 points; 10m, 3 points.

Score for EACH BAND will be the total points score for that band multiplied by the TOTAL PREFIXES worked on that band. Final "All Band" score is the sum of the contact points from each band, multiplied by the sum of the multipliers on each band.

Note W1, K1, WA1, WN1, A1, N1, are all separate prefixes and count as multipliers. W6AA1 would count as "W1" not as "W6".

80 metre section: for contacts on this band between VK and ZL, each VK and ZL call area is considered a "scoring area", with each contact counting 10 points. Each different call area will count as a multiplier.
160 metres section: as for 80 metres except each contact counts as 20 points.

8. Logs: Overseas Stations

- Logs to show date, time in GMT, call sign of station contacted, band, serial number sent, serial number received. Underline each new VK/ZL call area contacted. Separate logs must be submitted for each band.
- Summary sheet to show call sign, name and address, equipment used, and for each band QSO points for that band, VK/ZL call areas worked on that band.

VK/ZL Stations

- Logs to show date, time in GMT, call sign of the station worked, band, serial number sent, serial number received.
- Summary sheet to show call sign, name and address for each band, QSO points for that band, pre-

fixes worked on that band, claimed score for that band. All band score computed from sum of points from each band, multiplied by the sum of the multipliers on each band.

- A separate log for each band is required starting with 001 for each band.
- Failure to remove duplicate contacts will incur heavy penalties and greater than 2 per cent duplicates will disqualify the entry.
- Awards: Separate awards for Phone and CW.

A — World:

- Certificates to the top scorers in each country (call areas in W, J, U).
- Depending on reasonable degree of activity, separate awards may be made for top scorers on different bands.

B — VK/ZL:

- Top scorers in each call area of VK/ZL.
 - Top scorers on individual bands.
- 8 hour section:
- (a) and (b) as above.
- Entries to:—
WIA VK/ZL Contest Manager VK6NE,
388 Huntriss Road,
Woodlands 6018,
Western Australia
For VK/ZL, entries to arrive before December 31, 1981, and from overseas by 31 January, 1982.

SWL SECTION

- The rules are similar to the transmitting section but it is open to all members of any SWL Society in the world. No transmitting station is permitted to enter this section.
- The contest times and logging of stations on each band per weekend are as for the transmitting section except that the same station may be logged twice on any band — once on Phone and once on CW.
- To count for points, the station heard must be in QSO exchanging cyphers in the VK/ZL DX contest and the following details noted — date, time in GMT, call of the station heard, call of the station he is working, RS(T) of the station heard, serial number sent by the station heard, band, points claimed.
- Scoring is on the same basis as for the transmitting section and a summary sheet should be similarly set out.
- Overseas stations may log only VK/ZL stations, but VK receiving stations may log overseas stations and ZL stations, while ZL receiving stations may log overseas stations and VK stations.
- Certificates will be awarded as listed in the section under awards.

UNITY IS STRENGTH

Brisbane North Radio Club — John Moyle Field Day

Ken Elsworth VK4NPU

MAGAZINE REVIEW

Roy Hartkopf VK3AOH

These photographs of the Brisbane North Radio Club's participation in the John Moyle Memorial Field Day on 7th February, 1981, were taken by Graham VK4NHH.

This year the function was held at Camp Mountain, which is about 15 km north-west of Brisbane.

All bands were operated and a high score was obtained under adverse weather conditions.

Open camp fire conditions were used for the exercise which covered a period 3 p.m. to 9 p.m. local time.

It was a good amateurs' day.



The club at Camp Mountain site.



The 10 metre quad antenna under heavy rain.

(C) Constructional; (G) General; (P) Practical without detailed constructional information; (T) Theoretical; (N) Of particular interest to the Novice.

SHORTWAVE MAGAZINE Nov. 1980
QRP Operation (G) (N). Testing Transistors with a Multimeter (G) (N).

CQ Dec. 1980
World-wide CW codes (G). Antennas (G) (N). The W6WQC Keyer (P).

BREAK-IN Dec. 1980
Crowbars and SCRs (G) (P). SSB Transceiver (P). Week on Wallis Island (G). Botanist Contaminated (Humour WARO).

QST Dec. 1980
Terminal for RTTY (P). 80 Metre Antenna (G). Push to Talk Circuit (P). Wheelchair Mobile (G).

HAM RADIO Nov. 1980
7-28 MHz Super Quad (P). RTTY CQer (P). Transmission Line Circuit Design (T). AFSK Generator (P).

Dec. 1980
Yagi Antenna Design (T).

FT680R

FT480R

FT780R

Yaesu's all mode computerised
Transceivers for 6 metres, 2 metres and 70cm



All models feature:

- Digital readout with resolution to 100KHz.
- Four memories, which can be scanned.
- Two VFO's.
- Three tuning steps each for SSB and FM.
- Scanning microphone supplied.

Model	FT680R	FT480R	FT780R
Band	50-54MHz	144-148MHz	430-440MHz
SSB Power input	20 watts	30 watts	30 watts
CW, FM Power input	20 watts	30 watts	30 watts
AM Power input	8 watts	—	—
TX at 13.8v	3 Amps	3 Amps	4 Amps



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Stan Roberts
VK3BSR

INTERNATIONAL NEWS

ITU

Arising partly out of the work of WARC 79 a number of special purpose ITU Conferences have been announced. There is a mobile telecommunications WARC scheduled for March 1982, a WARC for planning HF bands allocated to the broadcasting service for January 1983 and October 1984, continuation of planning conference for Sound Broadcasting 87.5 to 108 MHz in two parts, September 1982 and October 1983, WARC on the use of the geostationary-satellite orbit and the planning of space services utilising it in March and October 1985, and a conference to establish criteria for the shared use of VHF and UHF bands allocated to fixed, broadcasting and mobile services in Region 3 scheduled for March 1986.

IARU REGION 3 ASSOCIATION

Amongst other matters discussed at the meetings of IARU R3 Association Directors in June 1980 it was affirmed that the Intruder Watch is a worthwhile activity and despite the problems involved it requires support.

10.1-10.15 MHz BAND

The Directors agreed that the best strategy regarding the new band at 10.1-10.15 MHz is for societies to obtain their administration's consent to release the band on 1/1/1982 and then after such agreement is reached, each society then determine how the band should be broken up by mode. As an aside, it is noted that the IARU R2 Conference in Lima last October adopted a policy that CW and RTTY only be used on this band.

NEXT IARU R3 CONFERENCE

Is scheduled to be held in Manila from 2nd to 5th April, 1982.

PRESENTATIONS OF EQUIPMENT

As mentioned in the last paragraph of International News in AR December 1980, it has now been announced in IARU R3 News, February 1981, that the JARL has presented, through the Pacific Society, items of amateur gear to the New Hebrides Amateur Radio Society, YJ8DX. In July 1980, in commemoration of the independence of the Republic of Vanuatu, and to the South Pacific University Amateur Radio Club, 3D2UR, in Suva, to commemorate the 10th anniversary of Fiji's independence, YJ8DX received an FT-1012D and two FT-207R transceivers. 3D2UR received a TS-830S and two TR-2400 transceivers. It is also expected that an HF transceiver and two 144 MHz transceivers will soon be presented to the Solomon Islands Radio Society.

PARLIAMENTARIANS

In Japan a club station, JG1ZQU, came into being with Japanese Dietmen, their Secretaries and other Diet Secretariat Staff as members. At least five Dietmen hold

amateur licences as well as 20 others. J1K1T, a member of the House of Representatives, was elected President of the new club, and JA5FBH, also a member of the House of Representatives, as General Secretary.

JARL HAMFEST

Direct from JARL comes news of the 5th JARL Annual Hamfest to be held in Tokyo from 21st-23rd August, 1981. Amongst the many attractive and exciting events will be displays by manufacturers of their latest equipment, computer and micro-processor group and club displays relating to amateur radio and booths for disabled and blind amateur activities. Some 30,000 visitors attended the 1980 Festival, and more are expected this year.

NEW BANDS

An IARU R3 circular, which has been copied to Divisional Federal Councilors, sets out the latest known news about the new bands. Much of this information was included in the Federal tapes during April. If any member requires further information please refer to your Division.

ALARA

AUSTRALIAN LADIES' AMATEUR RADIO
ASSOCIATION

The NSW Branch call sign VK2DYL is now used on the ALARA s-keds Monday nights, 2000 EAST, 3.565-3.570 MHz. Geraldine VK2NQI is net controller. All new girls are very welcome. If you don't have your own call yet, get your OM to call in for you.

Congratulations to Heather VK3AZU — a daughter, Maggie VK3NQI — a son. Neeta VK3NMM — a son.

New calls: Sandra VK4VCJ now VK4ACJ; Marilyn VK3VUA now VK4DMS; Rae VK3VUK now VK3AYL; Daphne VK2NXD now K2K?? (call pending).

Jill VK6YL has been appointed as sub-custodian of DX-YLCC Certificate Awards.

REQUIREMENTS

Work and confirm 100 licensed DX-YLs with not more than 2 (two) from each country.

Each girl must be DIFFERENT, e.g. you may only claim Elizabeth YB0ADT from one of her locations, not all of them.

Contacts must be made from the same location or community not exceeding 25 miles from base station.

Any band or mode may be used, no cross-band contacts, no repeaters.

Present ARRL countries list is used to determine valid countries, currently H5, T4 and S8 do not count.

APPLICATIONS

Applications may be accompanied by QSLs or photo copies of both sides of each QSL card, together with a list in alphabetical order by COUNTRIES of call, name, band and mode.

CUSTODIAN

Phyllis Shanks W2GLB is custodian, however Gill Weaver VK6YL, 23 Corbel Street, Shelley 6155, Western Australia, has been appointed sub-custodian and may verify your QSL cards prior to the application being forwarded to America.

FEEs

Sufficient postage or IRCs must be sent with QSL cards and application to enable the following:—

1. Safe return of cards by first class mail.
2. Certified application to be forwarded from Australia to America.
3. Certificate to be mailed from America to you.

ALARA Awards Manager Mavis VK3KS, QTHR. Please apply direct to Mavis for your ALARA award. Queries on joining to Geraldine VK2NQI or Mavis VK3BIR, or to myself. Please note new QTHR is 28 Lawrence Street, Castlemaine 3450.

Until next month.

73/33. Margaret VK3DML.

BOOK REVIEW

By VK3ABP

"Amateur Radio Techniques" (7th edition), by Pat Hawker G3VA. Published by RSGB. £6.08 by post world-wide. (Approximately \$12, probably less from Magpubs.)

It is with some diffidence that one attempts to do justice to this classic in its field. After all, a previous reviewer in this magazine (AR September 1978), writing of the 6th edition, has had the honour of his complimentary words being quoted on the cover of the 7th!

Nevertheless, one must risk an anti-climax, and compliment again. The 7th edition comprises 368 pages, of which about 50 are new or revised material. Some of the older pages still describe circuits using valves, but the new amateur need not be dismayed. Principles do not change, and what is a valve but an efficient oversized FET anyway?

As Pat Hawker states in the preface to the 7th edition, "This book does not aim at competing with the standard handbooks — rather at supplementing them". And what a supplement! Ideas, circuits, advice, suggestions: not only from the author's own wide experience, but from hundreds of other amateurs and engineers, writing in dozens of amateur and professional publications over a period of 22 years. Truly an editorial masterpiece for those who still like to build their own equipment. If the system you need is not described in this book, your requirement must be very unusual or, like G3VA, you too are at the forefront of amateur practice.

VK3ABP.

IONOSPHERIC PREDICTIONS Len Poynter VK3BYE

SUNSPOT NUMBERS

MONTHLY MEANS

6/80 — 157.2 7/80 — 135 8/80 — 135.4
9/80 — 154.5 10/80 — 162.9 11/80 — 146.3
12/80 — 176.1 1/81 — 114.4

PRODUCING SMOOTHED MEANS

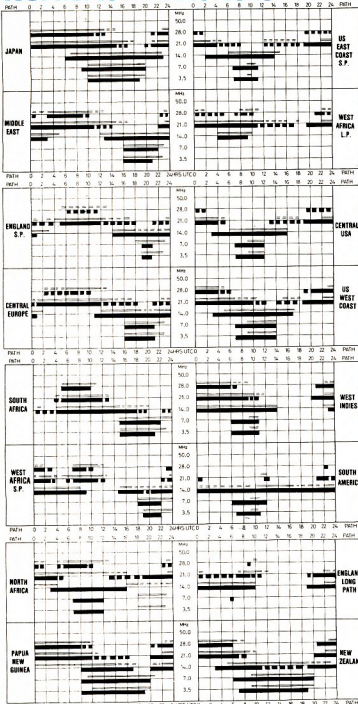
12/79 — 155.3 (Peak cycle 21)
1/80 — 164.6 2/80 — 163.3 3/80 — 161.6
4/80 — 159.2 5/80 — 156.7 6/80 — 155.2
7/80 — 153.2

PREDICTED SMOOTHED MEANS

1/81 — 141 2/81 — 138 3/81 — 136
4/81 — 133 5/81 — 131 6/81 — 129
7/81 — 127

SUNSPOT DATA COURTESY

Sunspot Index Data Center, Brussels



RAOTC

The Radio Amateurs Old Timers Club, led by its founder and Patron, Bob Cunningham VK3ML, held their 8th Annual Dinner at the Science Club, Melbourne, on Thursday, March 5th. This was attended by some 100 members drawn from VK States, Netherlands, UK and ZL. Included in the guests was the WIA Federal President, Peter Wolfenden VK3KAU, who was made very welcome by the members.

The guest speaker was Peter Warriol, from the OTC Sydney. He spoke on the advent of satellites in relation to communications and TV in Australia in years to come. He was introduced by the President of the RAOTC, Max Hull VK3ZS. Before and after the talk by Peter many old-timer's stories were swapped at the tables. It was not before 2300 hours that the gathering broke up. Max Hull invited all amateurs who had held licences for 25 years or more to become members of the Club. A handsome members' certificate is provided to members plus an attractive lapel badge. For those with 50 years service a sticker is available for incorporation in the certificate.

Application for membership should be made with a SAE to Harry Cliff VK3HC at PO Box 50, Point Lonsdale 3225, Vic. Membership is free after the initial payment of a joining fee of \$5 which covers the cost of the certificate, badge and postage.

Members may nominate overseas amateurs to join the RAOTC who qualify under the 25 year licence requirement. Overseas subscription is \$7 for the same privileges as for VK members. A complete membership list is provided to members with amendments from time to time.

Item submitted by VK3ML as Publicity Officer.

QSP

INTERNATIONAL YEAR OF THE DISABLED

From Radio Communications February 1981 comes news that a special call sign GB21YD may be in use during the International Sports for the Disabled to be held during the first week of August in Exeter. A suggestion was also received that an International "Weekend on the Air" for disabled persons be held on 1st-3rd August.

Predictions courtesy Department of Science and Environment IPS Sydney.
All times universal UTC (GMT).

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

3 Katrina Ave., Windsor Gardens, SA 5087

The Editor,
Dear Sir,
This is a plea in reference to some "Letters to the Editor" published in AR lately.

Firstly I have been licensed for two and a half years but a member of the WIA for only about four months, I hold a novice call and hope to upgrade to a "2" in February 1981. Morse for full call comes later, one exam at a time.

Now for my plea—In the copies of AR I have received since joining the WIA I am appalled to read letters, which remind me of the type published in the "CB Action" magazine, on the context of full call versus novice, CW v. phone, or some other mode v. something else. Now fellows, please!

In the "ARRL Handbook" just after the index you will find a page containing "The Amateur Code". I wonder how many have read it. I think two parts refer to all this and I will quote these two parts or parts of them pertaining.

Quote —
"Part two. The amateur is loyal . . . He offers the loyalty, encouragement and support to his fellow radio amateurs, etc.

"Part four. The amateur is friendly . . . slow and patient sending, when requested, friendly advice and counsel to the beginner, kindly assistance, co-operation and consideration for the interest of others; these are the marks of the amateur spirit." Unquote.

The letters mentioned above show a breakdown in the application of the code.

I hope this is not taken as a lecture, but I thought that we as amateurs were above the bickering, etc., which is commonplace in the band known as CB.

Now just one thought on the subject of novices in the field of the self-teaching hobby of amateur radio. Novice means beginner, and we are all beginners sometimes, so please give us a go. I think we all want to obtain a full call, but some of us through other commitments such as family, jobs, etc., may take longer than others, and didn't the WIA push for the novice class licence to raise the numbers, so what do you want? Someone to communicate or fight with!

I know I will make it to full call some time, it is just when I am not sure about.

Here's hoping this will put an end to the in-fighting going on in the amateur ranks.

73a. I. E. Coulter (in VK5MNCI).

The Editor,
Dear Sir,

I would like to comment about a certain letter by one full call, and all the comments from full calls and novices. About all this one letter, there are always a few rotten apples in any barrel. I think that we should take up a collection from the novice amateurs, and no doubt some full calls, and I am sure that we could get enough to have this person bronzed and put up on a pedestal and then placed in the most popular park in his area, and leave the pigeons to their best on him for a change, instead of putting it on us novices.

On the 24/1/81 at 2200 GMT on 25.540 a desperate call from WB5EMS to VK, because he had received a telegram to say his daughter had been badly injured in an accident, with very little more, but there wasn't any propagation to VK, so AH2E called VK for some help. VK4VCP, VK4NIM, VK4NHD, VK6N mobile and VK3KF answered. The VK4VCP rang Sydney and got all the information which was required, which by the way, WB5EMS daughter is now in a satisfactory condition, so we must be worth just a little.

Fine job.

Phil Morrison VK4NUM.

24 Dulcongh Street,
Crescent Head, NSW 2440
February 18th, 1981

The Editor,
Dear Sir,

When the WIA has, as members, say 90 per cent of all licensed amateurs in Australia, it will then be competent to speak for amateurs. At the present time it can only speak for its members — a minority of the licensed amateur population. If the publicity it gives Mr. Voron, for instance, is any criterion, it only speaks for a minority of a minority!

A letter in AR from a Novice said, inter alia, "The Novices saved Amateur Radio".

Let it be clearly understood by that author and any others of like thought, that Amateur Radio has never required saving at any time. Amateur Radio has grown steadily over the years without any outside help. (It may require salvation in the future from its self-nominated saviours, however!)

Had he written that the influx of Novice licensees saved the WIA he may have been nearer the mark, for the increase in membership did give the organisation a much needed shot in the arm — but that did nothing for Amateur Radio. The WIA is still a moribund invalid, with only one chance of lasting recovery and that is to direct its appeal to the serious amateur and not to the "Johnny Come Latelys", whose enthusiasm will wane as mercenary as it waxed, despite frequent titillation through the WIA magazine and the attention-seeking antics of Mr. Voron. There just is no valid argument for going out into the market place to artificially stimulate interest (in amateur radio) at the expense of dignity and decorum.

The WIA has its hands full at present getting, as members, all those already licensed and this will not be achieved by wooing CBers with ostentatious exhibitions.

The WIA, AND PERHAPS some larger Radio Clubs, may believe that they require more and more members if their ambition to have greater bargaining "muscle", like our Trade Unions and the Teachers' Federation, for example, is to be realised.

Industrial or Political "muscle" is not required and in any case it has connotations, at the time of writing this, which makes it a dirty word!

What is needed is a constant determination to improve standards and an inflexible abhorrence of lowering them, in any manner whatsoever.

We are not recruiting an expeditionary force. We should be striving to make a hobby well respected for its standards of excellence.

Yours faithfully,

Ron Andrews VK2ARN.

43 Boyana Crescent,
Croydon 3136
11th February 1981

The Editor,
Dear Sir,

The circuit presented by Mr. Rechner in the February issue of AR is certainly very simple. So simple in fact that I am prompted to place myself in the position of a newly-qualified amateur, and ask the following questions:

- (i) That's a Pierce crystal oscillator isn't it? Won't it over-excite my crystal just purchased at great expense!, cause heating, and perhaps damage it?
- (ii) When I was studying for my licence, I read that it was good practice to have a buffer stage between any oscillator and the keyed stage to prevent chipping. How does your circuit overcome this problem?
- (iii) How is the keying shaped to prevent clicks? I cannot see any capacitors or inductors in your circuit that are large enough to do this.
- (iv) What is the harmonic output like? Shouldn't there be some sort of filtering of the output?
- (v) You say that your circuit can accommodate both SWRs. How is this done when there appears to be no loading control?
- (vi) What is the globe in series with the output for? Won't this cause some loss of precious output power?"

It is agreed that receivers and transmitters can be built at very low cost using old TV and radio parts, and this certainly provides great enjoyment for the builder and operator. It must be remembered however that any signal that we put to air should be of the highest quality practicable so as not to cause unnecessary interference or annoyance. Therefore, transmitter designs, whether solid-state or valve, should include all components necessary to achieve this goal.

Yours fraternally,

Drew Diamond VK3XU.

17 Chrystobel Crescent,
Hawthorn 3122

The Editor,
Dear Sir,

Further to Mr. Maxwell Hull's letter to Amateur Radio February 1981:

Since Nick Rozzakeas has evinced a desire to build his own transmitter will the agents for Yaezu, Kenwood, Icom, etc., rush into print in horror at the impending "day of doom", or are we out to kill all "home brew" enthusiasts with their "nose fitting" ingenuity before they get out of hand?

Seriously, surely the issue is the right of anyone to design and build a key, or any piece of equipment, be it different from the norm; such enthusiasm and ingenuity should be encouraged rather than denigrated.

Yours faithfully,

Ron Cannon VK3BRC.

Lot 92, Russell Avenue,
Woodend, Vic. 3442
1st March, 1981

The Editor,
Dear Sir,

It has become impossible to listen to frequencies above 14 mc/s. Many, many times I have been listening to some choice DX when suddenly the Russian "woodpecker" comes in and completely ruins the thing. He also plays a merry hell with any RTTY I may be copying at the time. And he is not confined to just one band of frequencies, as I guess many people know. I was wondering, therefore, if there is not something we as wireless amateurs can do. What about a complete ban on QSOs with Soviet bloc stations, followed by a complete severing of all relations with the USSR?

If enough countries did this then something should happen and once again our bands would be free from this continuous menace.

On another matter, I do wish that amateurs would learn the proper phonetic alphabet! Many, many times I have misheard a call sign because no phonetics were used. What about it, chaps? You may know with whom you are in contact but does a casual listener know? As well, what about identifying a little more often. Sometimes I hear a QSO between two or three stations that rambles on for 20 minutes before an identification. Surely this is against Government regulations as well as being extremely thoughtless to any SWLs.

Yours faithfully,

Terry Robinson L31105.

[For action on the "Woodpeckers" please see Intruder Watch and International News in April issue.—Ed.]

86 Miscamble Street,
PO Box 98, Roma 4455

The Editor,
Dear Sir,

I would be very interested to know if many readers of AR share my irritation with one aspect applicable to virtually all transceivers currently available for purchase.

That is the practice of including in the Tx specs the PEP input power only and making no reference to the RF output power.

It seems to me that the real "nitty gritty" is the power one can reasonably expect to feed to an antenna which presents a 50 ohm non-reactive load to the equipment. In this regard surely manufacturers could publish the output obtained under 2 tone input with a non-reactive dummy load with the output measured under non-flat topping conditions.

At least these figures would give prospective purchasers a fairly good guide as to the efficiency of the equipment, or could it be the lack of reasonable efficiency which inhibits these figures being published.

Perhaps other amateurs and one or more of the Technical Editors may care to comment on my "grouch".

73. Cliff Jenkins VK4QJ.

8 Aird Street,
Camberwell, Victoria 3124
13th February, 1981

The Editor,
Dear Sir,

While relishing a British Rail Pass on a recent UK trip, a chance selection of my destination for the day found me at one of the most northern parts of Scotland. As the train neared the station at Wick, I noticed a vast array of antennae; fifteen minutes walking revealed that this impressive spectacle belonged to the official post office receiving and transmitting station for all vessels and oil platforms in the North Sea.

The two main transmitting antennae were broad band devices; one horizontally polarised (3 wire centre feed) and the other vertically polarised with six elements. Each was connected to its respective transmitter by a combining network to enable 3 transmitters to work into each antenna simultaneously; the frequencies used being 1792, 2182 2625 KC into one, and 1827, 2705, 3610 into the other. The receiving antennae were approximately 1/4 mile away. Power used varied from 300W to 5 KW — to avoid QRM to others lower power is used where possible. Three modes of transmission, AM phone, radioteletype, and CW are used, handling approximately 300 messages daily. While the five operators had to be qualified at 40 w.p.m. on CW, their normal CW speed is between 25-30 w.p.m., using standard keys. As half their daily contacts (150) are made on CW, I asked why and was told all operators considered it faster and more accurate than phone or RTTY, and generally preferred it!

Hoping this will not stir up "that" recent controversy.

Yours faithfully,

Peter Lord VK3NPL.

18 Albion Ave., Glandore 5037
13th March, 1981

The Editor,
Dear Sir,

I refer to the item on page 7 of the March issue concerning the possible issue of a commemorative stamp issue.

Those of us with memories long enough will recollect that a few years ago a submission was made to the Postal Authorities for the issue of a stamp to celebrate the birth of Marconi 100 years past.

This request was turned down "because notice was required at least three years in advance to make the necessary arrangements".

The suggestion emanated from the fertile mind of Mr. Rob Wilson VK3WA.

Not to be outdone, Rob came up with a fresh suggestion, to wit the Marconi commemorative OSL card, which was produced by the VK3 Division.

This really "took off" and many thousands were distributed, greatly to the surprise of those handling the distribution.

The only strange thing about the whole activity was a query to Rob in the course of his dealings about the printing when he was asked, in all seriousness, "Who was Marconi?". Such is fame, if you don't know.

I feel a much better purpose would have been served if a commemorative stamp for the occasion had been issued, instead of the stamp to record the 50th year. Certainly it could have been a great improvement on the present issue of 22 cent stamps, which I do not view with any favour.

Yours faithfully,

Tom Laidler VK5TL.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. M. G. O. NIELSEN
Mr. G. F. POOLEY

VK3AGN
P29DJ

OBITUARY

Mr. M. COLLETT

VK2RU

Major Collett VK2RU passed away suddenly on February 8, 1981, whilst visiting Springwood. Major was not an army title but his Christian name. He came to NSW in 1926 from UK, where he had shown much interest in radio. He was licensed as VK2RU in the early thirties and for many years was the HMV agent for radio and television in Mann Street, Gosford. He was very keen to discover colour TV when this became possible. In the post-war years he was extremely active on 51 megs and worked Japan on that band, 156 megs was the two metre band in those days, and he used that frequently.

With Reg Brook VK2AI he formed and guided the Central Coast branch of the WIA for a number of years from 1956. The Gosford Field Day was held at first at the Sailing Club then later at the racecourse, and now every February at the Showground. He had much to do with its success.

Major and Ruth were most hospitable, and WIA members and delegates remember their home at 42 Bent Street with its ferns and palm trees. Major was made a life member of the WIA for his work on behalf of the institute. He was a Rotarian, member of the Sailing Club, the Anglican Church, and technical advisor to Broadcast-Station 2GO at its commencement.

To his son Edwin and daughter Linda and their families we offer our sincere condolence.

Lindsay Douglas VK2ON

OBITUARY

GRAHAM FRANCIS POOLEY, P29DJ
Graham Francis Pooley P29DJ passed away in Port Moresby on January 31st, 1981, after a short illness.

Born at Warwick, Queensland, in 1936, Graham was educated at Warwick Technical College and completed his fitting and turning apprenticeship at Walkers Shipbuilding, Maryborough. He served on the M.V. Sarawak as an engineer for a while before coming to Port Moresby in 1959 to join the marine workshops of Steamships Trading Co.

After five years engineering work around the country he entered the sawmilling business at Era, about 20 miles inland from Baimuru in the Gulf region of Papua. He was still operating the mill at the time he passed away.

Interested in radio from early childhood, Graham gained his AOCIP in 1956 and was licensed as VK4DJ, Maryborough. He was a great experimenter and "home-brew" artist with a lean towards antennas. He even built a 95 feet high timber tower to hold up some of his creations which ranged from helicals for 432 MHz to long wires disappearing into the jungle. Most of the 90J equipment was home-brew and was built in spite of supply problems that would have driven most people to other pastimes. He had an abundance of Australian ingenuity.

Few contacts passed without Graham's signal being in there with the best of them. His operating interests also included OSCAR contacts, rag chewing and DX. Goodness only knows how many DX stations he gave a "new country" from Papua over the years.

He was also a gentleman and it is my privilege to have known him as my friend during his 20 years here in Papua New Guinea. May he rest in peace. The PNG Amateur Radio Society extends its condolences and sincere wishes for the future to Graham's mother, sister Heather, wife Sela and their seven children.

R. A. Sutherland P29BS,
Radio Inspector.

HAMADS

- Eight lines free to all WIA members \$9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA 1979 Call Book.

FOR SALE

Kenwood TS180(S) Service Manual, \$7; IRC coupons, 30 cents each, SASE with order please; Bird wattmeter, model 4360, 1.8-30 MHz, made exclusively for Henry Radio, \$160; Tx by CSE, 1.75-2.0 MHz, A3 and A1 mod., 10 watts, solid state, \$40, VK6NE, QTHR, Ph. (08) 446 3232.

3 EL Yagi for 10m, by Boomerang, beams very good cond., anodised elements and boom gamma plastic, guaranteed low VSWR, \$50. Ph. Strathpine 205 3238, ask for Bernie VK4NSB.

Icom IC-22A, with repeaters, 2, 3, 4, 5, 6, 7, 8 and 40, 50 simplex, 1/10 watt output, and matched ETI 40 watt PA for mobile use and circuit sheets, mic, cables, handbook, all exc. cond., \$195; Tri 9R-590S communications Rx, v.h.f. type, 0.5-30 MHz in 4 bands, AM (wide/narrow), SSB, CW, v.h.f. BFO, bandspread, antenna trim, handbook, in good cond., \$125. VK2ZET, QTHR, Ph. (02) 85 4640.

TS520S, as new, orig. packing, manual, etc., \$550; also D66 digital display meter and leads, \$150. VK2LX, QTHR, Ph. (043) 92 2390.

FT-101Z, with mic. and lead, \$600; FRG-7 Rx, as new, \$225; Ken KP-12 RF speech processor, \$90. VK3OM, QTHR, Ph. (03) 560 9215.

10m Txxv, (converted CB), 40 channels upper and lower SSB, goes extra well, mobile or base, 12V, \$150; with mic. VK2AXZ, QTHR, Ph. (049) 54-0893 AH.

Icom IC211, as new, in orig. carton, also ARX2 Ringo, total price, \$600. VK2DBJ, QTHR, Ph. (02) 634 2451.

10m Crystals: The VK2 Division has for sale miniature style pair of crystals, 28.345 and 27.890 MHz, suit 10m handhelds, \$1 a pair plus 50 cents P. and P. Limits 5 per order. Write Disposals, WIA (NSW Div), PO Box 123, St. Leonards 2055. Offer closes end May.

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Yaesu FRQ7 Rx, exc. cond., complete with read-out and manual, \$275. Dr. K. A. McGarrity VK2MW, 231 Macquarie Street, Sydney 2000, NSW. Ph. 232 6261 9 a.m.-1 p.m. week days.

Collins S-liner 755-B Rx, noise blanker, full set Skytec sub-systems, \$600; 32S-1 Tx with 516F2 power supply and speaker, spare valve, \$600. Gene VK4AJ, QTHR. Ph. (076) 32 4383.

RTTY HAL Communications TS500 Demodulator, suitable VHF and HF, 170 and 850 shift, model 15 page printer and 14 tape printer and punch, g.c., \$100; Hustler mobile antennas, complete set 11 through 80 and ball mount, g.c., \$80; Novice Hy-Gain 5, 3W ch., 28.310-28.600 and ant., g.c., \$80; Midland 23R dual meter, \$6; Gabena low pass filter 30 mcs., \$3; GBKW dipole traps, \$6; MR6 2m, ch. 2, 8, receive 5, \$30. VK3ACR, QTHR. Ph. 772-4570.

Kenwood TS-820 Tx, CW filter, DC-DC converter, owner and service manuals, MC-355 mic., little use, exc. cond., \$760. Scott VK2VUT, Ph. (048) 21 7132, or QTHR 1890.

Kenwood Rx 2820 and fitted speaker, \$650; or consider the 400 and TH10 for \$10, 15, 20m with cash adjustment, VK3VJO, Ph. 560 5611 bus., 846 1792 AH.

Have a number of magnetic line starters and electric motors to sell or swap, offers please; I require 80m Rx to assist home-brew Tx, DC-DC converter for TS520S, 70 cm, 2m or 6m equipment. Elliot Greenfield VK6NIE, 11 Antares Street, Southern Cross 6426, Ph. (090) 49 1213.

Quad, 3 el. duod. 10-15m, alum. construction and hollow 1/4 glass spreaders, gamma matched for 100V SWR, with 2 x 25m RG58 balanced feedlines, if required will arrange shipment, \$150; converted 27 MHz CB, contact Airhawk as per ARA Vol. 2, mods., full 10m coverage in 5 K steps, exc. GRP rig, 12W PEP, four SPST switching for freq. changing, will answer all mail enquiries if interstate or country, \$150. Bob VK3VDI, QTHR. Ph. (03) 314 2027.

Trio TS510 HF Txcv., good cond., all bands, ext. VFO and handbook, spares include set of tubes except filament, \$310; Johnson Viking CB Txcv. converted to 10m, not going, problem with PLL conversion, details and circuit diagram provided, \$40. BK3BUS, Macedon, Ph. (054) 26 1233.

FT-227RB, 2m FM 800 ch. PLL, no mods, exc. cond., \$270. ONO. Ken Taylor VK3YOS, QTHR. Ph. (056) 23 1039 week-days, 359 9499 BH (leave message).

Kokusai 455 kHz mechanical filters, complete with US and LS xtal's, two sets available, \$25 each set. ONO. VK2BDO, QTHR. Ph. (02) 529 7221.

Kenwood TS-520S approx. 18 mths. old, in exc. cond., unmodified, in orig. packing, \$550. ONO; also quad antenna kit, complete with fibreglass spreaders and two piece hub by VK3ASC, \$80. VK3ABS, QTHR. Ph. (02) 351 3298.

Kenwood 2200 hand-held 2m FM Txcv., as new, xtal's or repeater 1, 2, 4, 5, 6, 7, 8, 9, 10, simplex 40-59 mcs., charger and case, \$175. VK2BDO, QTHR. Ph. (02) 328 7892.

Icom IC710 (701), showroom cond., 3 months use, c/w Icom SM2 Electret mic., TH3JA beam, used same period, c/w balun, both units extremely well priced, VK2AAM, Ph. (049) 63 2009 Bus. and AH.

FT101E, exc. cond., c/w DC inverter, fan, mic., full instruction manual and circuit, DGM and orig. packing, selling due to move, \$650. Ph. (03) 528 5976 after 5 p.m.

Swan 350 Txcv. with 12V power supply, PTT mic., 3 helical whip ant., 40, 20, 15m and balun, \$350. Jim VK4AJG, Ph. (075) 38 0276.

FT620, AM, CW, SSB, 100 kHz cal., 50-54 MHz, worked 16 countries, inc. 2 State records, \$300, ONO; TS520S, DC power supply, service manual, MC355 mic., \$550, ONO. Phil VK4AYX, Ph. (076) 30 8122.

Exchange Trio-Kenwood twins, RX-590S, SSB, CW, AM, FM, 1.8-30 MHz and 144 MHz, TX-590S, SSB, CW, AM, 1.8-30 MHz, 5-999 speaker, for Atlas 215X txcv., p/a etc., or will sell; EK-26 electronic keyer, new; KW-108 monitroscope and manual; all enquiries answered. VK2AKE, QTHR. Ph. (048) 71 2113.

Vinten BTR10R 2m FM console cabinet base station, 50-70 watts, 240V AC, 6 ch., fitted with chans. R42, R44, R48, S40, S50, desk mic., 600 ohm line remote control unit, handbook, maintained to factory standard, \$150; Vinten BTR12X 6m FM rack MTG or table top base station, 240V AC, 52-525 MHz, 1st m.c., handbook, maintained to factory standard, \$70. VK3ADM, QTHR. Ph. (03) 592 2168 after 6 p.m.

Collins KWM-2 Txcv., orig. cond., with 240V AC power supply, manual, mic., and spare filters, \$675; freight paid, VK4OY, 17 Blackwood Road, Manly West, Old, 4179, Ph. (07) 396 0885.

TS120S, late model, no drift, \$550. ONO; Datong D7 processor, \$140; FL2100C linear, WARC freq., never used, \$500; Daiwa CN418 cross needle ATU, 500 watts, only 170; Electrophone 40 ch. CB with narrow crystal filter and matching 300 watt linear, never used, \$350. ONO. VK2DNP, QTHR. Ph. (049) 43 4220.

Txcv. TS520, 13.8V DC and 240V AC power supply, complete with fan, 55B and CW filters, new valves, \$200 (2) and 120V7A (1), professionally overhauled, with operating manual and orig. packing, \$550. ONO; VFO520 external VFO to suit above txcv., with operating manual and orig. packing, the lot for \$625. ONO. VK2WE, QTHR. Ph. (02) 487 1273.

Yaesu FT224 2m FM mobile 10W txcv., exc. cond., serial No. 308117, with instruction manual, mounting bracket, crystals for rp's. 2, 3, 4, 5, 6, 7, 8, simplex 40, 49, 90, 51, 52, 53, 200. Dale VK3AAE, QTHR. Ph. (03) 397 5576 home, (03) 391 1333 work.

FT101 with blower, only used portable now and again, \$495; FT620 6m txcv., exc. cond., \$350. VK3BH, QTHR. Ph. (03) 80 1204.

Rx, Eddystone Model 750, mini cond., c/w full set of new spare valves, manual, ext. speaker, and matching ext. S meter, orig. package, \$229. ONO. VK3NMI, QTHR. Ph. (059) 725 4102.

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Operating Instruction Book and/or circuit for Taylor valve tester, type 45C (gm. testing model), a call from anyone who knows how to operate it would be welcome if no instructions available. Alan VK3KZ, QTHR. Ph. 341 5681 bus.

Rx or Tx xtal for ch. 50 Ken KP202 Txcv., 146 500 MHz. VK2BDD, QTHR. Ph. (02) 529 7221.

Crystals to suit Yaesu FT2F Txcv. any or all of the following required: 6.0895, 6.09375, 6.102, 6.106, 6.108, 52.500, 52.51666, 52.383, 52.416, 52.433 VK1NDX, QTHR L10047, Ph. (062) 51 1816.

Oscilloscope required by electronics student, must be in working order, dual trace preferred but not essential. Ian Bedson L50561, QTHR (1980). Ph. (08) 277 5683.

A510 Army Txcv and RCA Victor model Q31 Rx circuit diagrams and service information, will pay copying. John VK2ZJF, QTHR. Ph. (02) 969 4539.

Power Supply or Circuit Diagram to obtain 90V DC and 1.5 V DC Des Taylor VK3BBT, QTHR. Ph. 459 9991.

Eddystone 640 Rx in orig. cond., also and pre-war R38, National, Hallicrafters, etc.. Details to VK3OM, QTHR. Ph. (03) 560 9215.

Plug in Type Coils or coil formers, 4 pin, 5 pin or 6 pin, bakelite/polystyrene or whatever Ken VK6ZA, QTHR. Ph. (092) 41 1010.

Eddystone 858 Dial Assembly for Deltahat mk. I communication Rx W. Knowles, QTHR. Ph. (044) 47 2227.

Two Sockets for QOE05/40; UM2, UM3 or equiv. mod. transformer, plus connection and data sheets; circuit and other pertinent information for Rx type AR21, VK3XBF, 4 Owen Street, E. Kew 3102.

Circuit Diagram for Hallicrafters SX-62 Rx, will beg, borrow or buy Dick VK2RP, QTHR. Ph. (02) 88 1598.

Yaesu FV401 external VFO to suit FTDX401, Contact VK3BFD, QTHR. Ph. (03) 231 3979.

VFO for FT75B (external), VK2DPY, PO Box 186, Wailsham, NSW 2287, Jh. (049) 52 1272.

TH60XX Thunderbird Hgain Beam, any reasonable offer for a beam in good cond., will pay for shipping if price is right. Bob VK3VDI, QTHR. Ph. (03) 314 2027.

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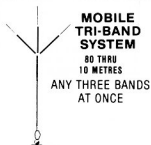


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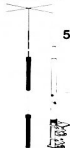
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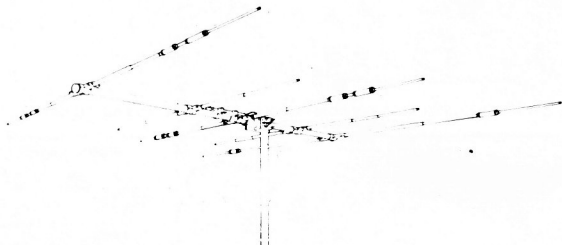
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Boom length.....	18 feet
Longest Element.....	31 feet
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Surface Area.....	8.4 sq. feet
Wind load.....	164 lbs
Weight.....	50 lbs

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Power Input.....	Maximum Legal
Input Impedance.....	50 ohms
-3dB Beamwidth.....	66° average
Lightning Protection.....	DC ground
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